Single Aisle
TECHNICAL TRAINING MANUAL
T1+T2 (IAE V2500) (Lvl 2&3)
STRUCTURE

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STRUCTURE

Structural Breakdown and Zoning (3) 2
Doors D/O (3) 26
Fuselage D/O (3) 42
Pylons/Nacelles D/O (3) 80
Stabilizers D/O (3) 94
Windows D/O (3) 128
Wings D/O (3) 142
SRM D/O (3) 192
Damage Assessment Example D/O (3) 230
Damage Assessment Ex. 1 Operational Scenario (3) 334
Damage Assessment Ex. 2 Operational Scenario (3) 338

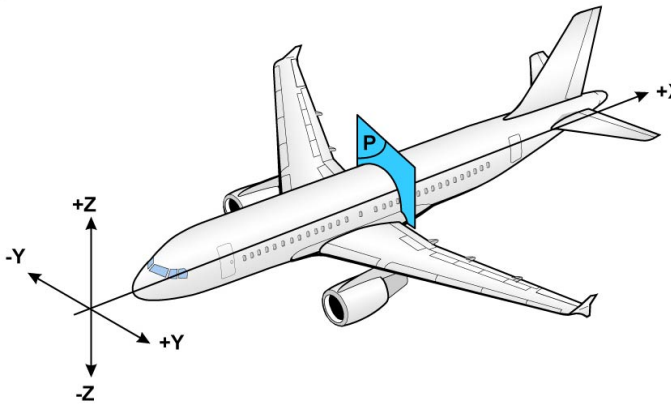
UGB13131 - U7ST0M0

STRUCTURAL BREAKDOWN AND ZONING (3)

REFERENCE AXES

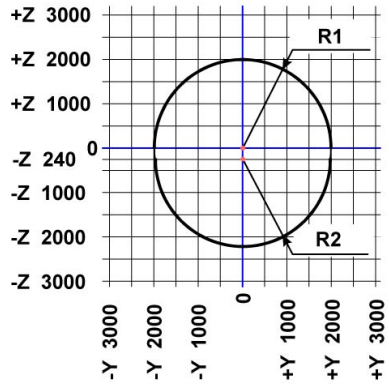
The structure elements are installed according to the following reference axes. The X axis in the longitudinal direction of the fuselage, the Y axis in the direction of the wing span and the Z axis in the vertical direction. The cross section P presents a typical fuselage section at frame 47.

NOTE: Note: The reference (station 0) for all structural measurements for the X axis is set at 100 in (254 cm) forward of the A/C nose.



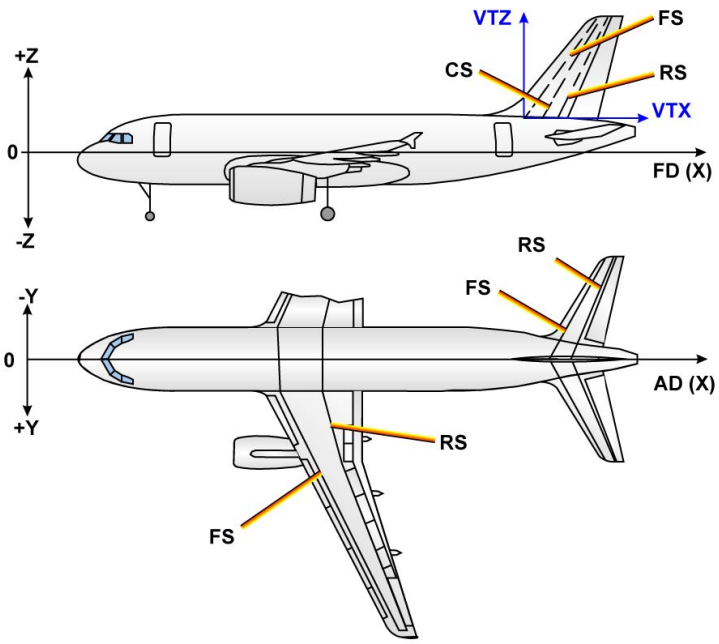
+X= AFT DISTANCE FROM STA "0"
+Y= LATERAL DIST FROM "AD"
LEFT SIDE
-Y= LATERAL DIST FROM "AD"
RIGHT SIDE
+Z= VERTICAL DIST FROM "FD" UP
-Z= VERTICAL DIST FROM "FD" DOWN

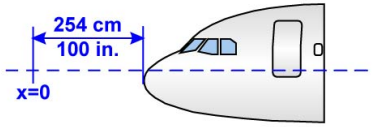
CROSS SECTION P

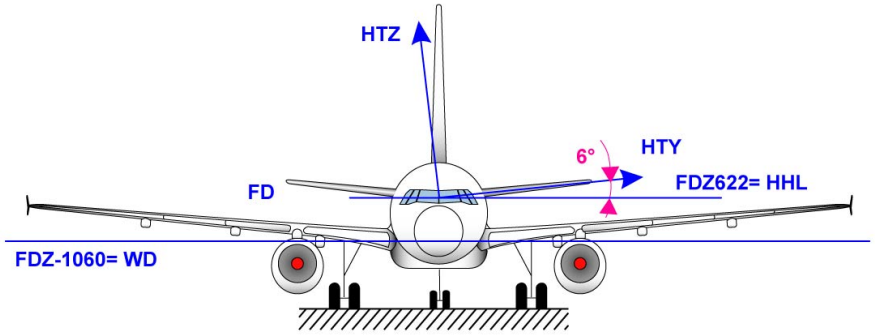


R1	R2
1975	1926
77.76	75.83

MILLIMETER
INCH







MAJOR AIRCRAFT REFERENCE AXIS

AD= Airplane Datum
FD= Fuselage Datum
WD= Wing Datum
HHL= Horizontal Hinge Line
FS= Front Spar
CS= Center Spar
RS= Rear Spar
VT= Vertical Tail
HT= Horizontal Tail

REFERENCE AXES

STRUCTURAL BREAKDOWN AND ZONING (3)

ATA CHAPTERS

The A/C structure is divided according to the ATA 100 specifications.

SECTION NUMBERS

Each major part of the A/C receives a section number. The fuselage section base number is 10. The fuselage is divided into various sections for manufacturing reasons.

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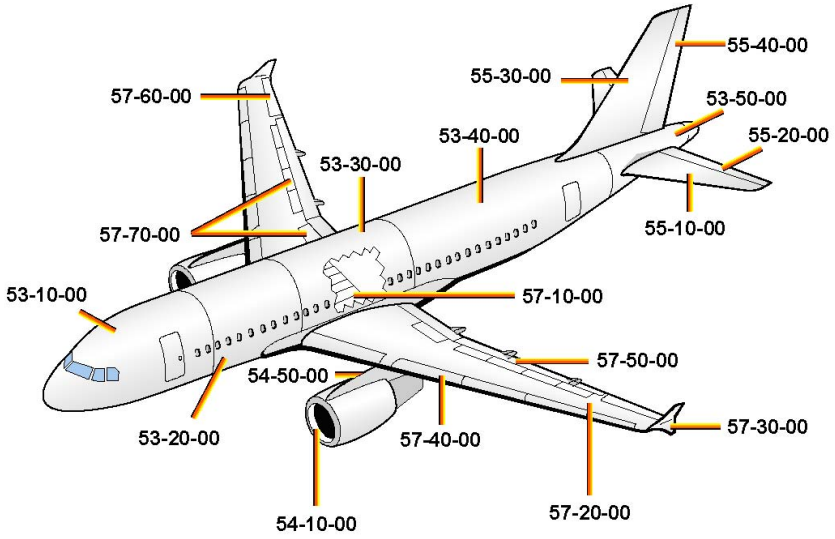
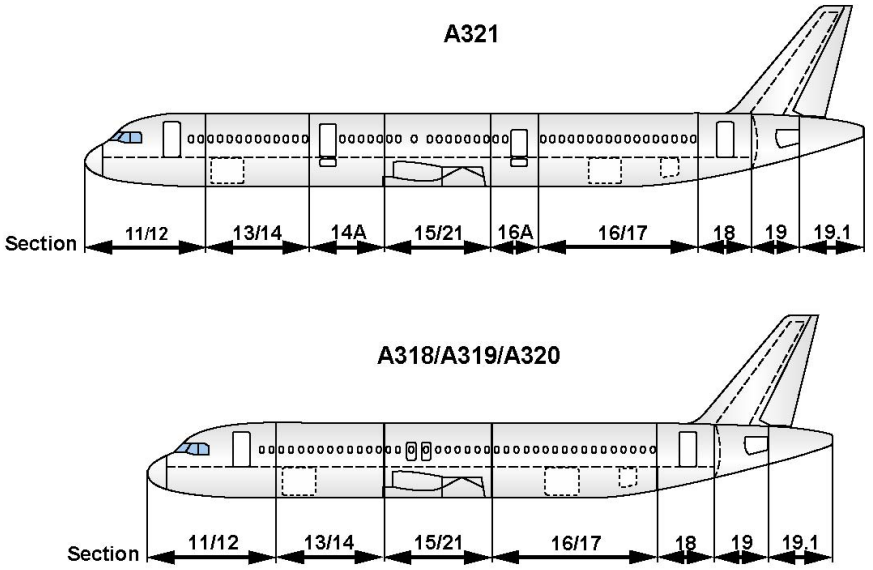
ATA CHAPTERS



51: STANDARD PRACTICES AND STRUCTURES
52: DOORS
53: FUSELAGE
54: NACELLES/PYLONS
55: STABILIZERS
56: WINDOWS
57: WINGS

SECTION NUMBERS



ATA CHAPTERS & SECTION NUMBERS

UGB13131 - U7ST0M0 - UM01D1000000001

STRUCTURAL BREAKDOWN AND ZONING (3)

SECTION NUMBERS (continued)

WING AND TAIL PLANE

The general wing section base number is 20. The general tail plane section base number is 30.

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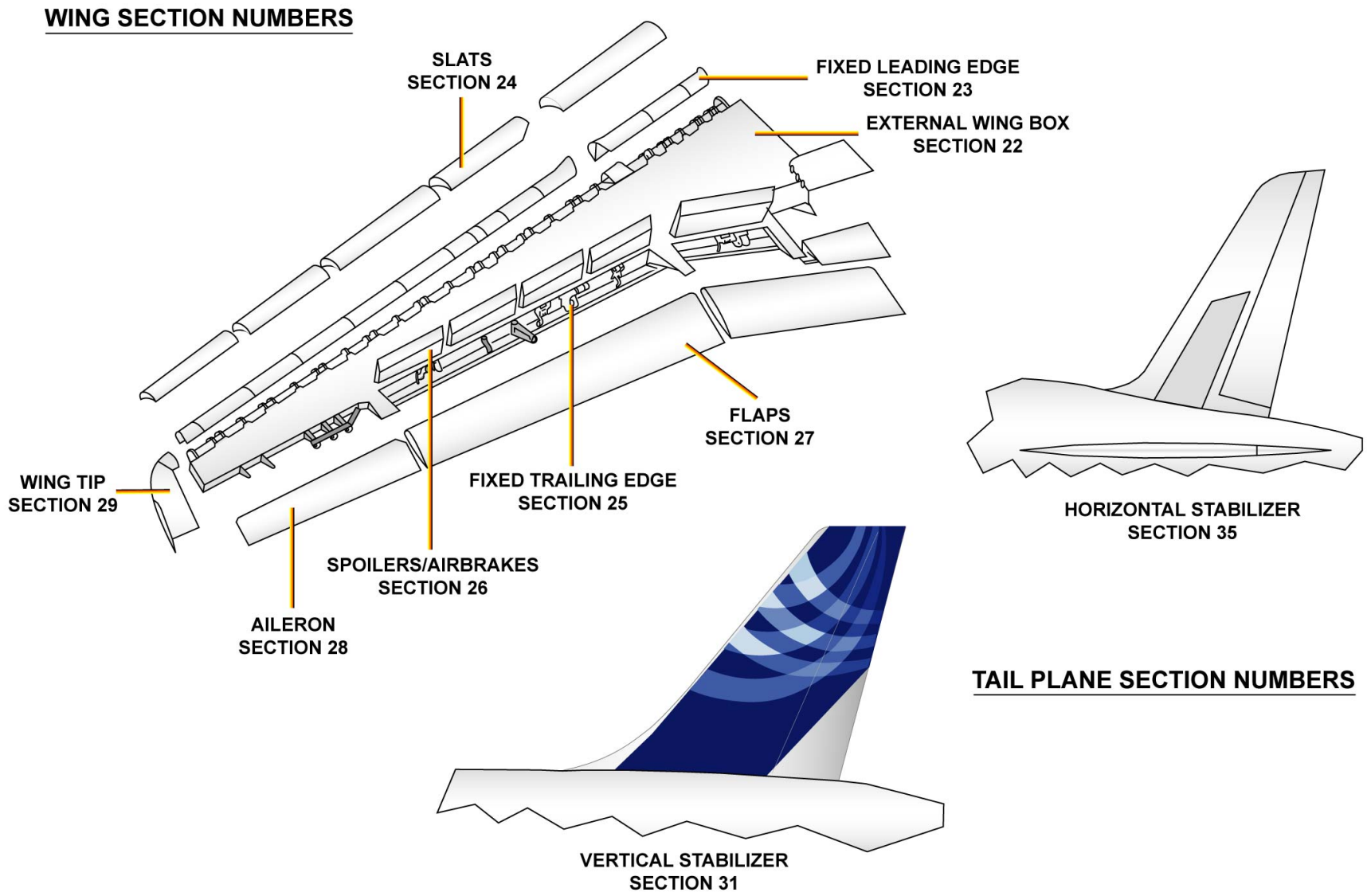

SECTION NUMBERS - WING AND TAIL PLANE

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STRUCTURAL BREAKDOWN AND ZONING (3)

SECTION NUMBERS (continued)

ENGINE, LANDING GEAR AND BELLY FAIRING

The engine section base number is 40. The L/G section base number is 50. The general belly fairing section base number is 60.

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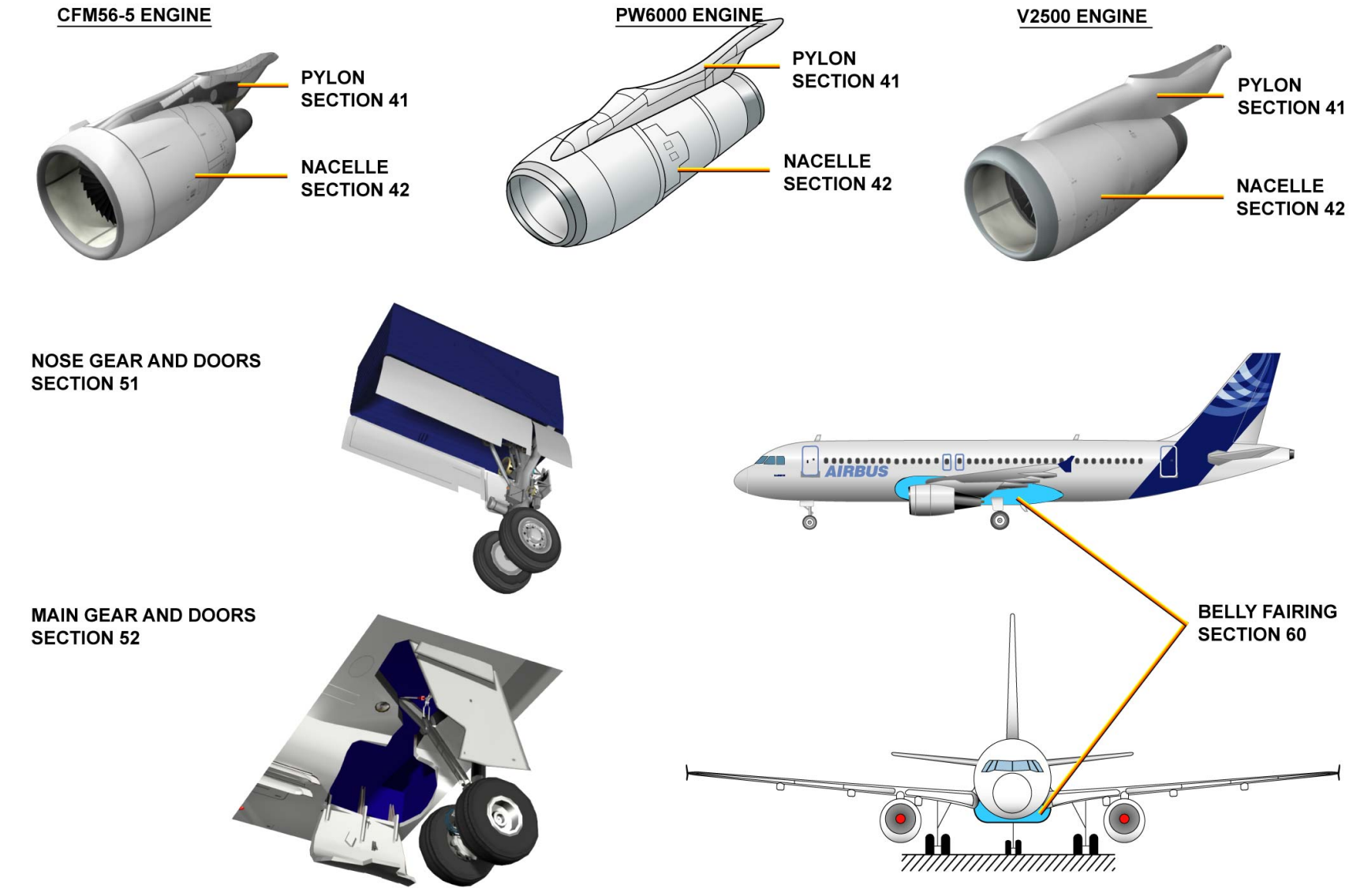

SECTION NUMBERS - ENGINE, LANDING GEAR AND BELLY FAIRING

STRUCTURAL BREAKDOWN AND ZONING (3)

STATION NUMBERS

FUSELAGE

The STAtion number is the distance in centimeters of a cross-section from a reference point. The station/frame numbers shown agree with the section boundaries.

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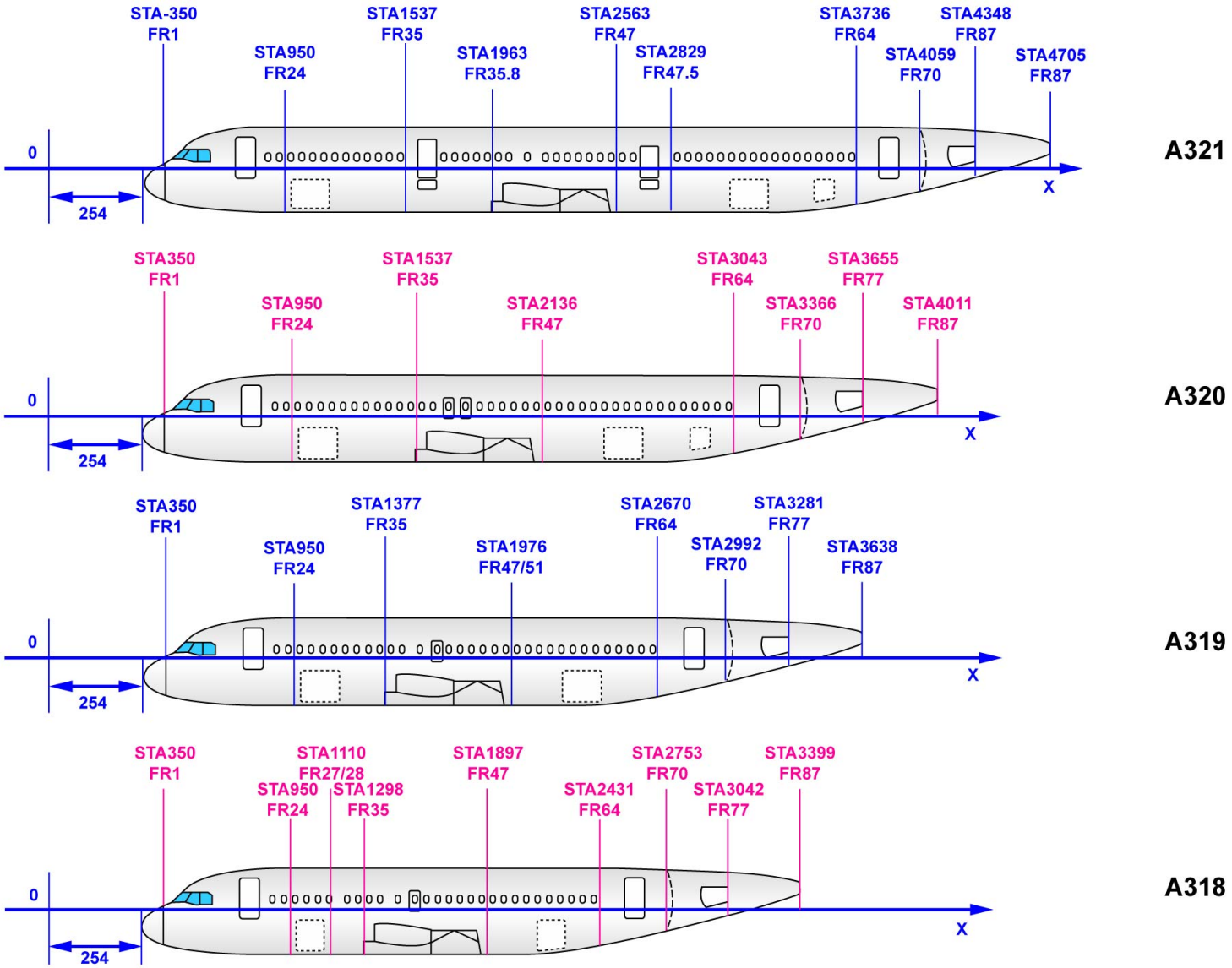

STATION NUMBERS - FUSELAGE

STRUCTURAL BREAKDOWN AND ZONING (3)

STATION NUMBERS (continued)

VERTICAL STABILIZER

For the vertical stabilizer the reference station is Z=0 at the vertical Z-axis. Due to the fin tip extension, the A318 station numbers have changed. The new additional rib 12N is on the STA597.

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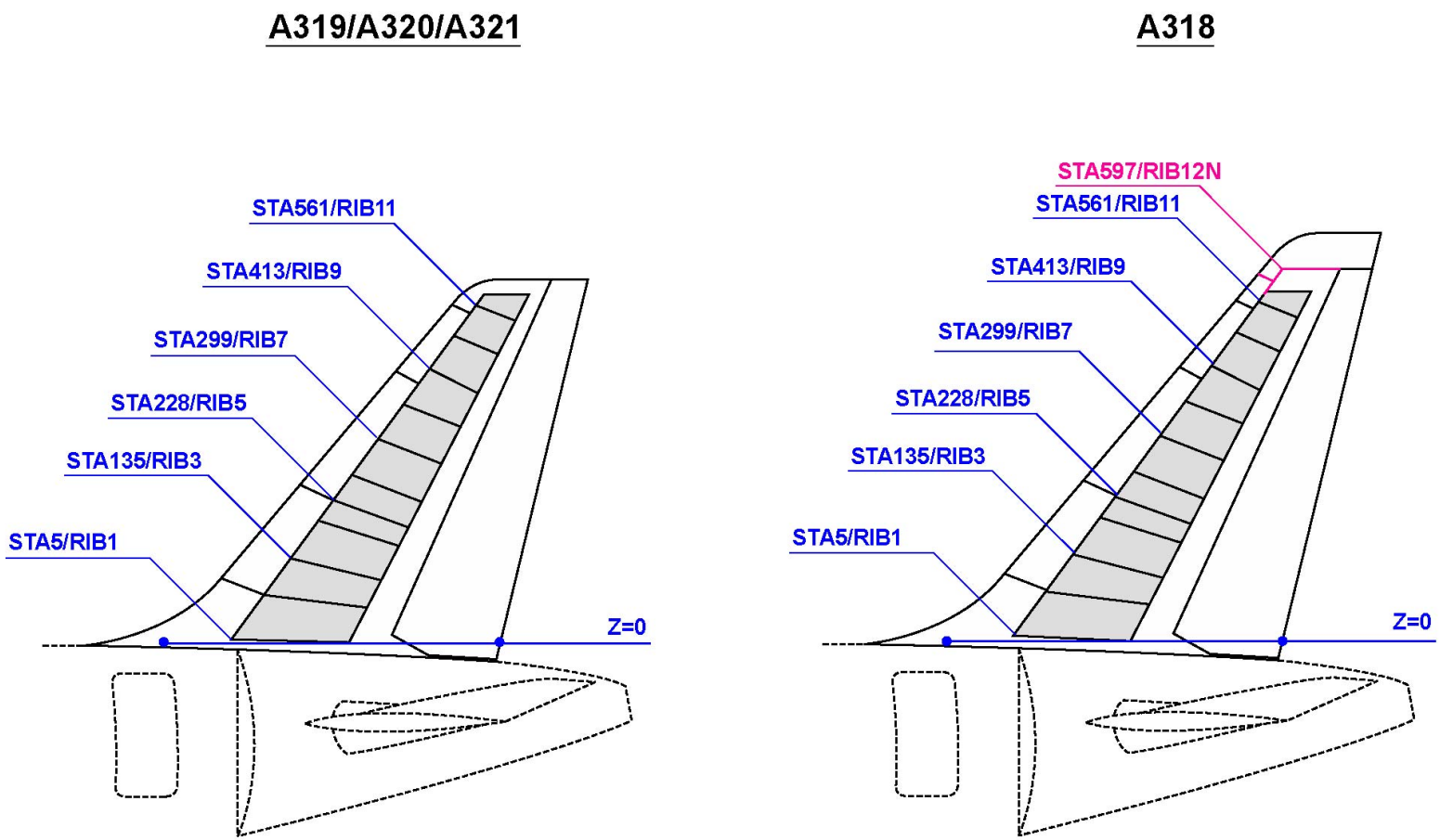

STATION NUMBERS - VERTICAL STABILIZER

STRUCTURAL BREAKDOWN AND ZONING (3)

STATION NUMBERS (continued)

HORIZONTAL STABILIZER, ENGINE AND WING

For the horizontal stabilizer the reference station is y=0 at the A/C Y axis. For the wings, the reference station is the wing reference axis (WY). WY is located at 1868 mm (73.54 in) from the A/C X axis. For the engines, station numbers are different depending on the version.

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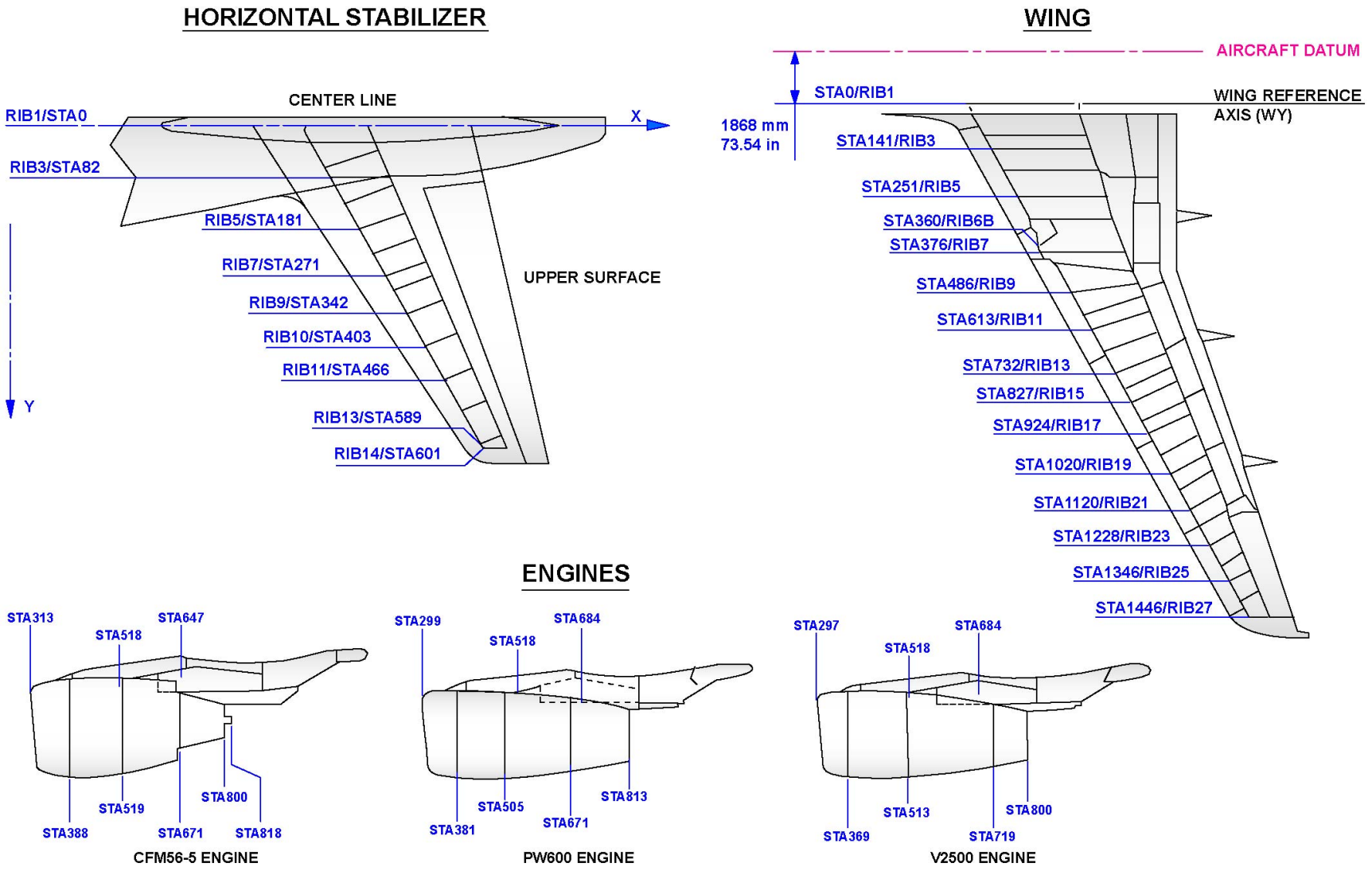


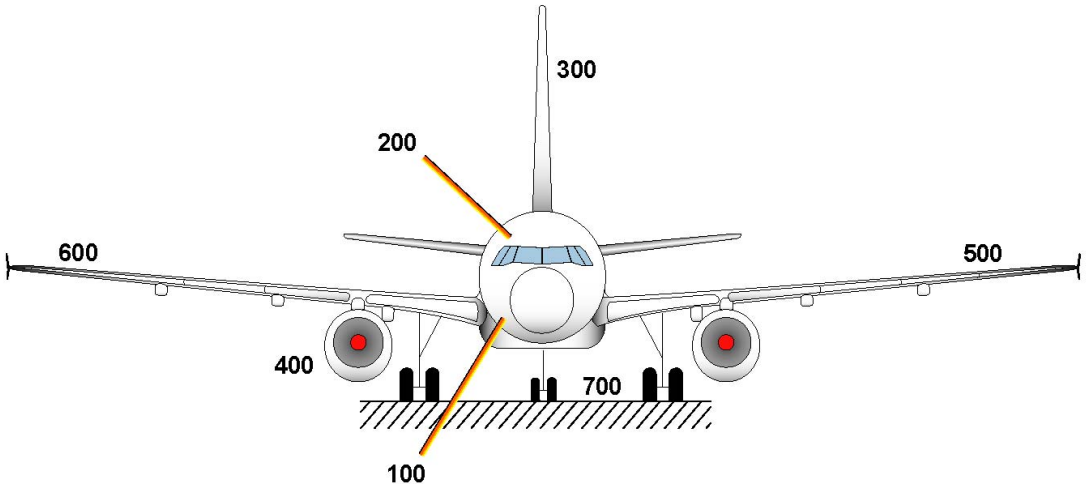
STATION NUMBERS - HORIZONTAL STABILIZER, ENGINE AND WING

STRUCTURAL BREAKDOWN AND ZONING (3)

ZONES NUMBERS

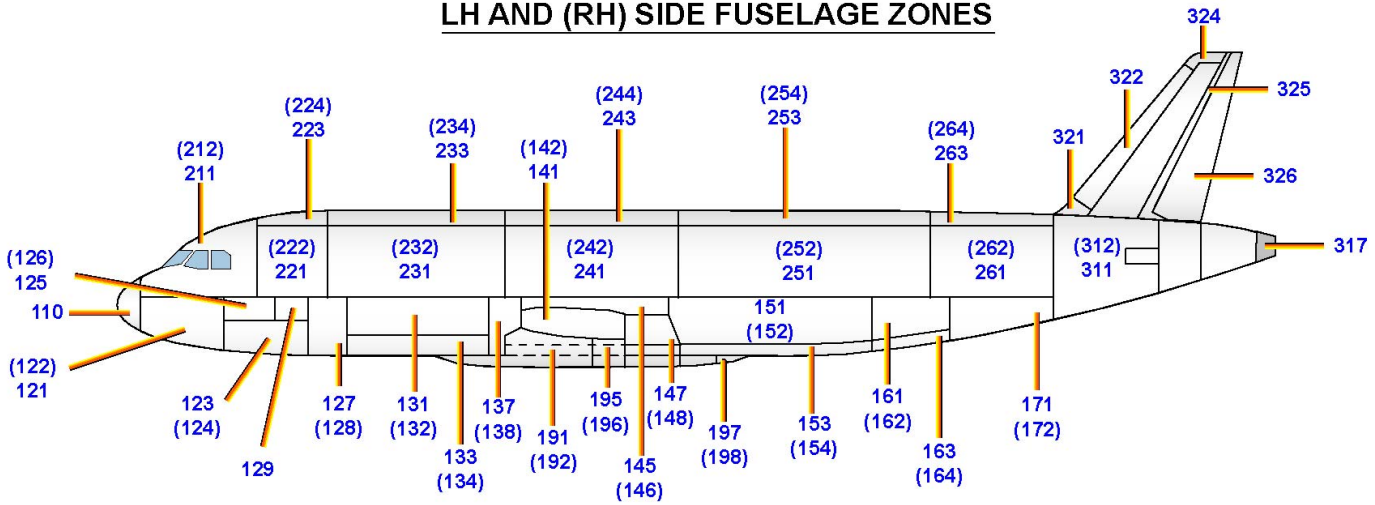
There are 8 major zones for the A/C. Each major zone is identified by the first digit of a three digits number. The even numbers identify the zones on the RH side of the A/C, while odd numbers identify the zones on the LH side of the A/C. The sub-zone 320 identifies the vertical stabilizer.

MAJOR ZONES



100 TO 199: LOWER HALF FUSELAGE
200 TO 299: UPPER HALF FUSELAGE
300 TO 399: STABILIZERS AND FUSELAGE TAIL SECTION
400 TO 499: PYLON AND NACELLE
500 TO 599: LEFT WING
600 TO 699: RIGHT WING
700 TO 799: LANDING GEAR
800 TO 899: DOORS

LH AND (RH) SIDE FUSELAGE ZONES



ZONES NUMBERS

STRUCTURAL BREAKDOWN AND ZONING (3)

ZONES NUMBERS (continued)

WING (UPPER SURFACE) AND HORIZONTAL STABILIZER

The 500 numbers identify the LH wing zones, while the 600 numbers identify the RH wing zones. The sub-zones 330 and 340 identify the LH and RH side of the horizontal stabilizer.

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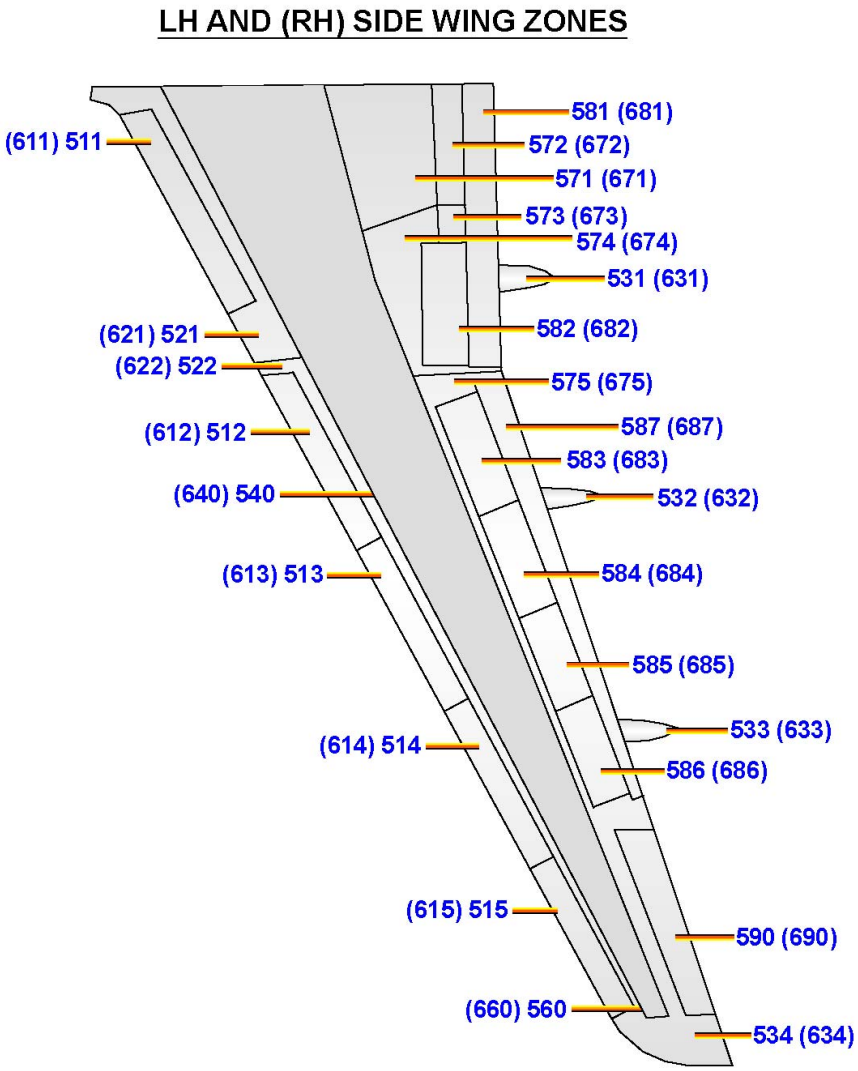

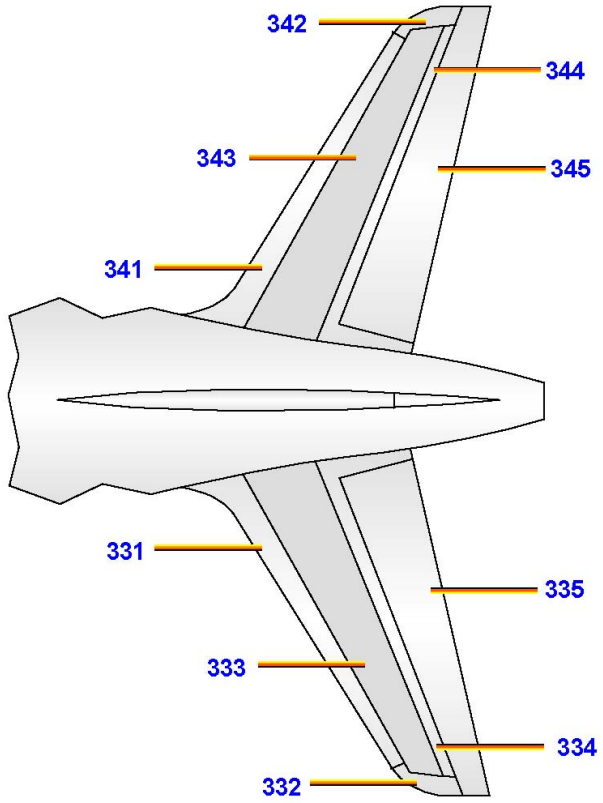

ZONES NUMBERS - WING (UPPER SURFACE) AND HORIZONTAL STABILIZER

STRUCTURAL BREAKDOWN AND ZONING (3)

ZONES NUMBERS (continued)

WING (LOWER SURFACE), BELLY FAIRING AND LANDING GEAR

The sub-zone 710 identifies the NLG. The sub-zones 730 and 740 identify the LH and RH MLG.
The sub-zone 190 indicates the belly fairing. 734 and 744 are the MLG door zone numbers.
Access doors and panels are identified by the number of the zone in which the panel is installed followed by a two letter suffix. These two letters are used to indicate the doors and panels. The first letter indicates which access door or panel it is, starting from the reference axis (A=first, B=second, ..., G=seventh, etc...). The second letter indicates the access door or panel location:
- T=top (upper) surface,
- B=bottom (lower) surface,
- R=right side,
- L=left side,
- Z=internal,
- F=floor panel,
- W=sidewall panel,
- C=ceiling panel.

Here is an example of access panels on the left wing lower surface.

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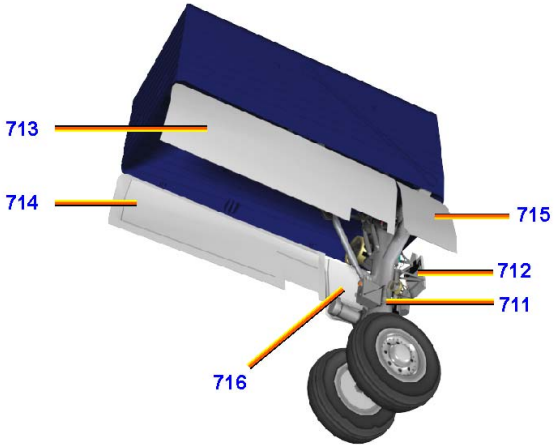
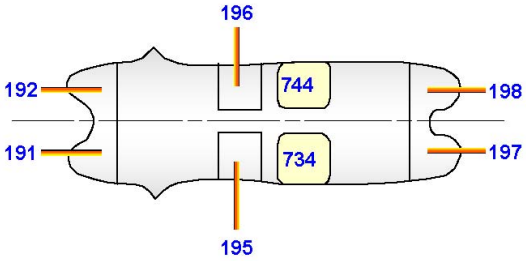
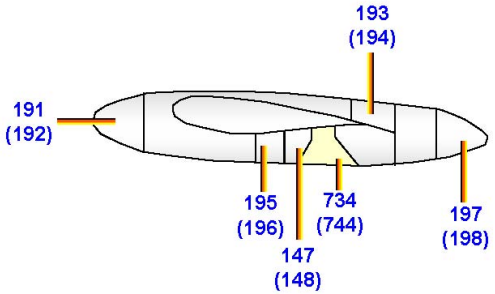
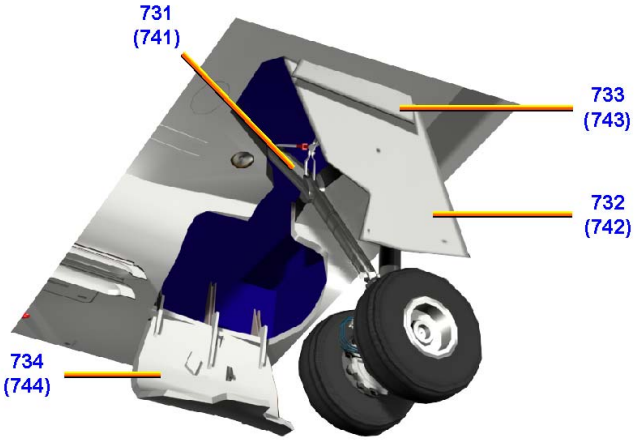
NOSE LANDING GEAR ZONES



BELLY FAIRING ZONES

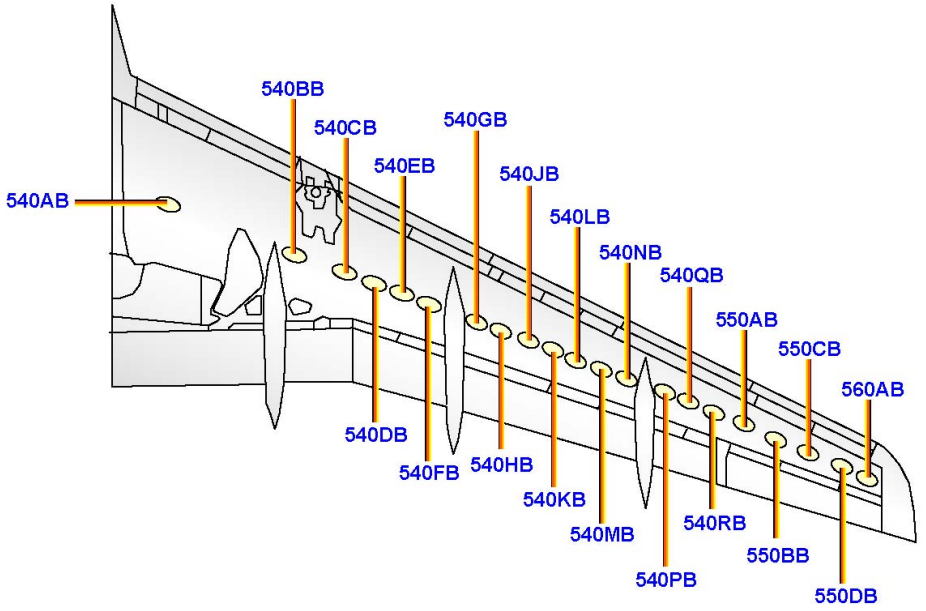






LH AND (RH) MAIN LANDING GEAR ZONES

ACCESS PANELS ON LEFT WING LOWER SURFACE



ZONES NUMBERS - WING (LOWER SURFACE), BELLY FAIRING AND LANDING GEAR

STRUCTURAL BREAKDOWN AND ZONING (3)

ZONES NUMBERS (continued)

NACELLE, PYLON, ENGINE

The difference between the LH and RH pylon and nacelle is made with the ten digits of the zone number 400. The difference between the LH side and RH side is identified by the last digit (Tens digit: odd for he left and even for the right). Within one engine, an odd zone number indicates the LH side and an even zone number indicates the RH side of the engine.

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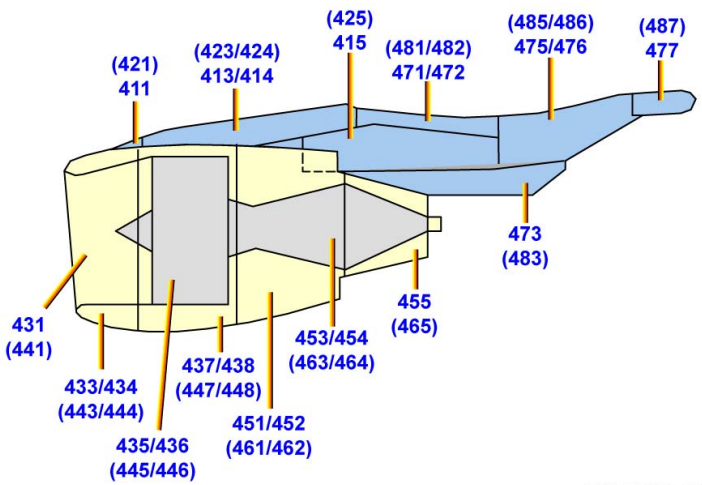
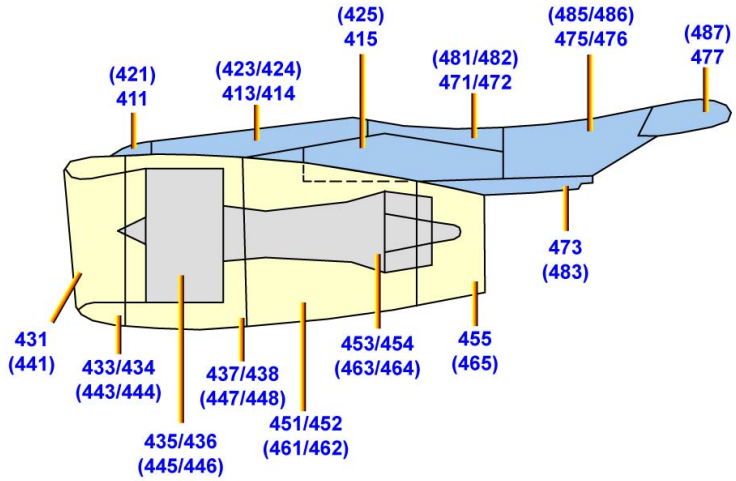
LH AND RH SIDE NACELLE AND PYLON ZONES

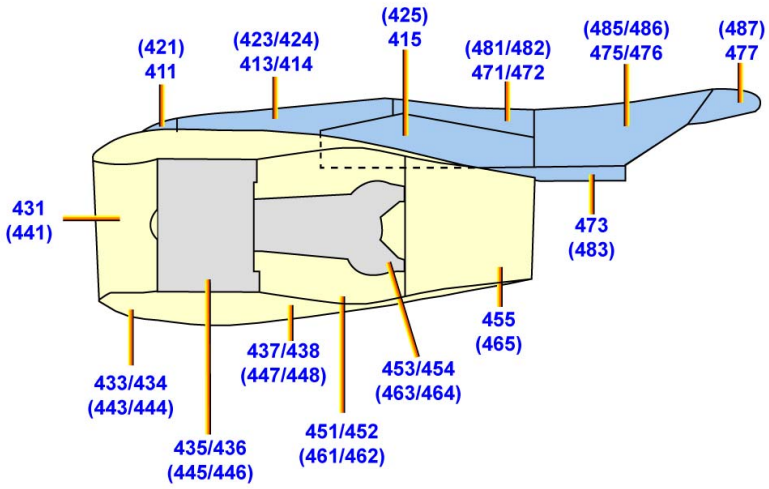
LH AND (RH) CFM56 ENGINE



LH AND (RH) IAE V2500 ENGINE



LH AND (RH) PW6000 ENGINE



ZONES NUMBERS - NACELLE, PYLON, ENGINE

UGB13131 - U7ST0M0 - UM01D1000000001

STRUCTURAL BREAKDOWN AND ZONING (3)

ZONES NUMBERS (continued)

DOOR

The major zone 800 identifies the doors.

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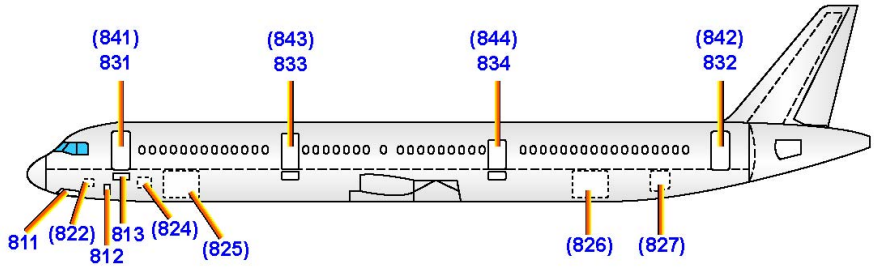
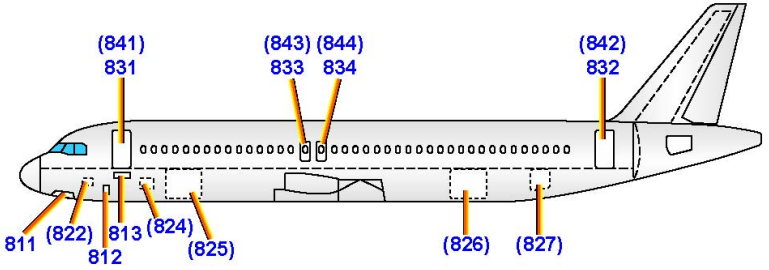
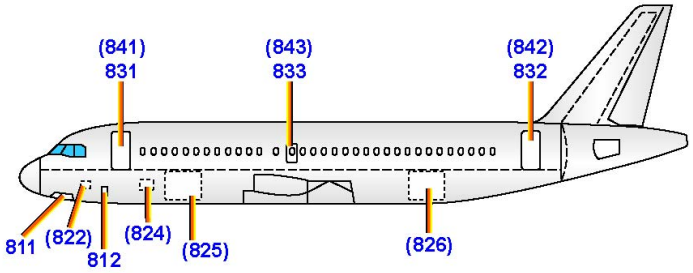
LH AND RH DOOR ZONES



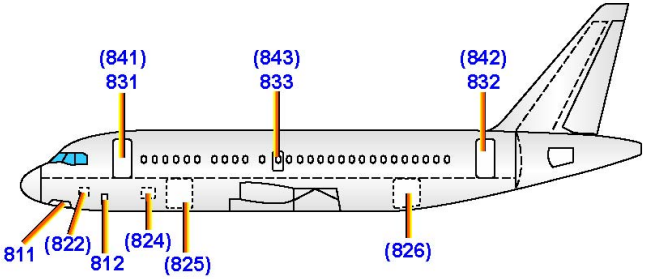
A321



A320



A319



A318

ZONES NUMBERS - DOOR

DOORS D/O (3)

GENERAL

The fuselage has:
- 4 passenger/crew doors,
- 2 or 4, emergency exits depending on the A/C type or option,
- 2 cargo compartment doors,
- 1 bulk cargo compartment door (A320 & A321 only),
- landing gear bay doors and access doors for servicing and maintenance.

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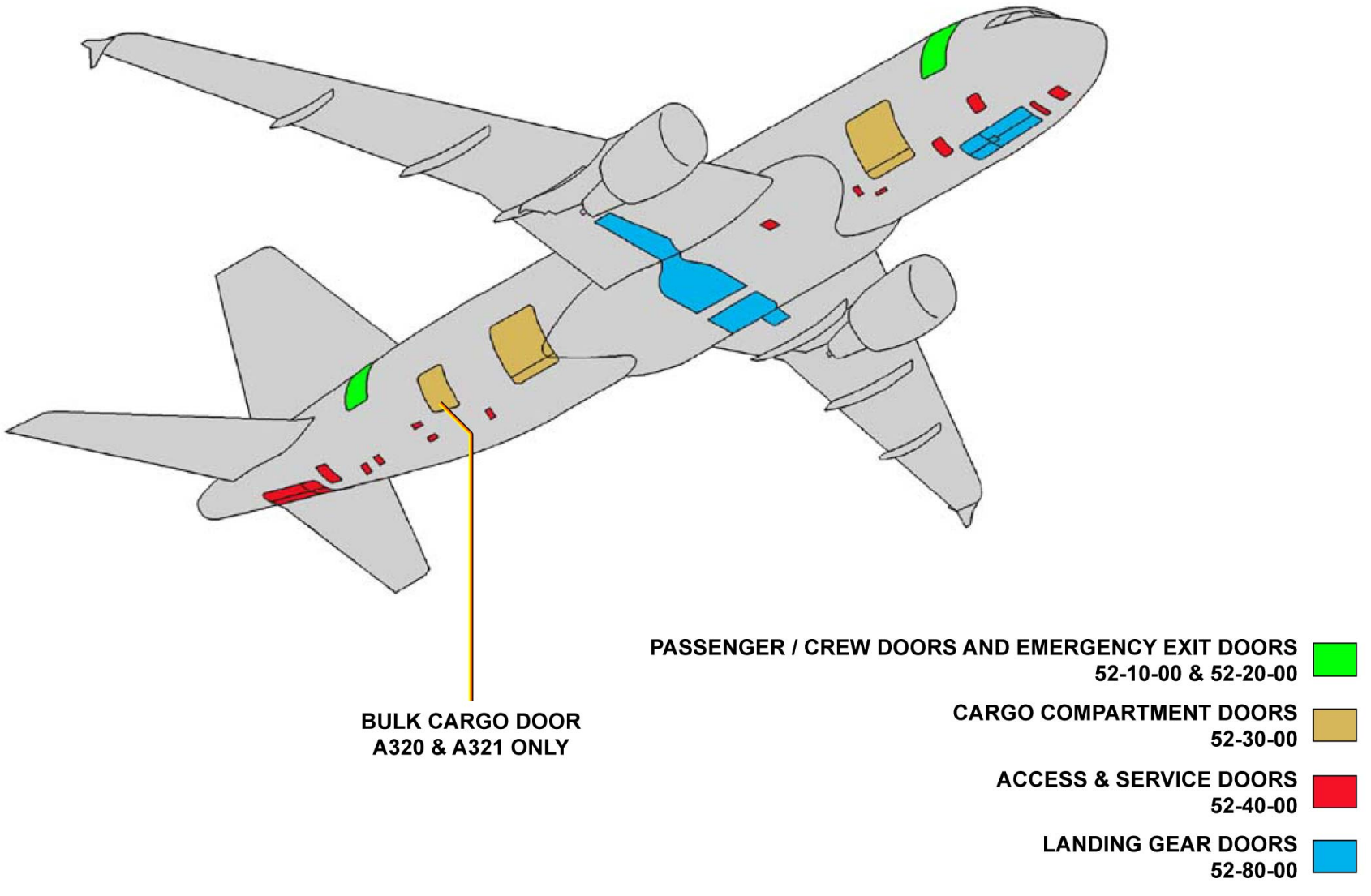

BULK CARGO DOOR
A320 & A321 ONLY
PASSENGER / CREW DOORS AND EMERGENCY EXIT DOORS
52-10-00 & 52-20-00
CARGO COMPARTMENT DOORS
52-30-00
ACCESS & SERVICE DOORS
52-40-00
LANDING GEAR DOORS
52-80-00

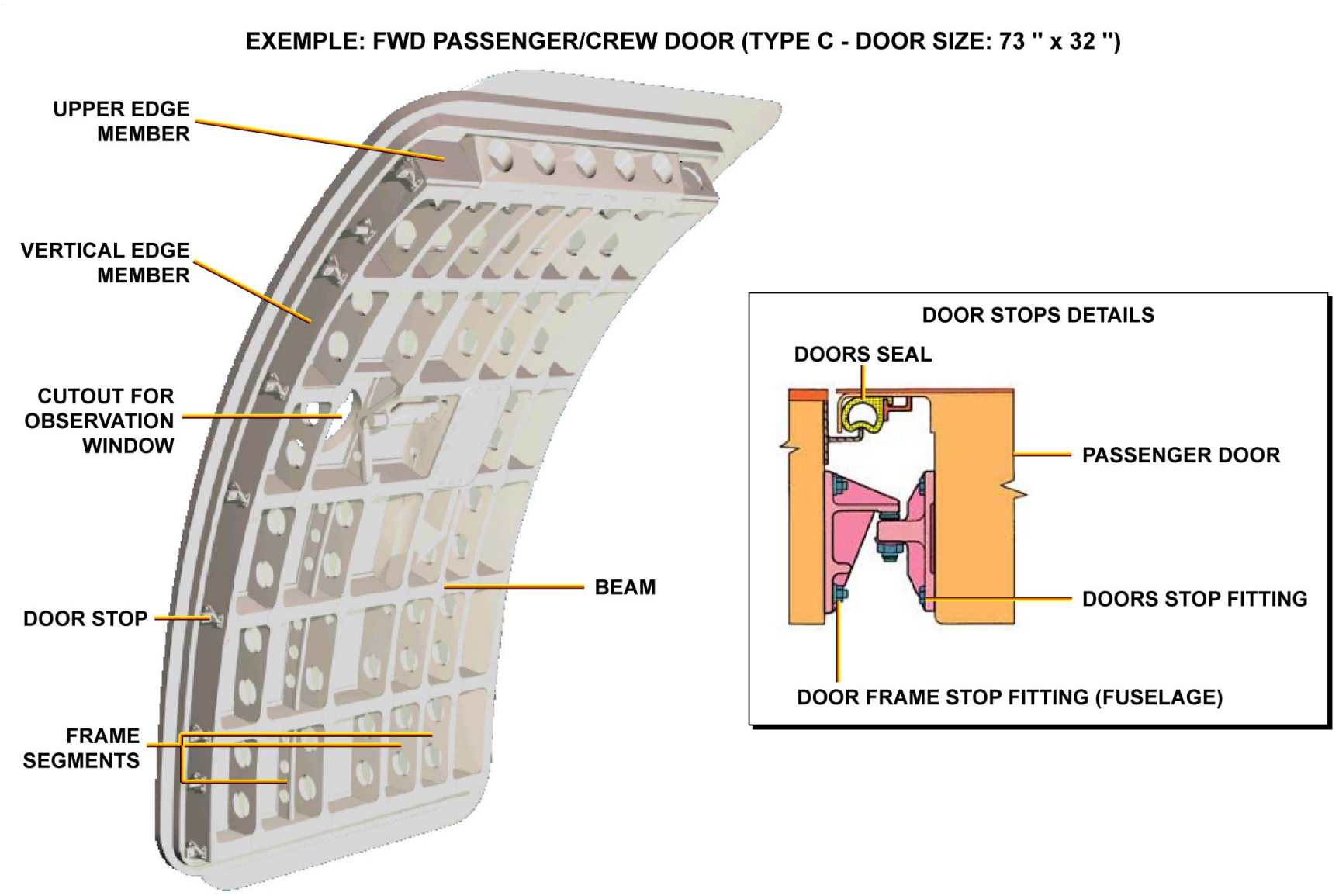
GENERAL

DOORS D/O (3)

PASSENGER COMPARTMENT DOORS

PASSENGER/CREW DOOR

The aircraft has four type C passenger doors, located on each side of the fuselage at frame (Fr) 16/20 and 66/68.
Normal operation of the door is possible from the inside and the outside of the aircraft. Arming of the emergency operation is only possible from inside.
The doors are of fail-safe, plug-type construction. The structure is of conventional design, composed of an outer skin, frame segments and beams. Edge members built a surrounding frame on which hinge fittings and locking mechanisms are installed. The loads resulting from cabin pressure are transferred by stop fittings located on each side of the door and the frame.
All the doors include an evacuation system. The escape slides or slide / rafts are stowed at the lower part of the passenger/crew door.



PASSENGER COMPARTMENT DOORS - PASSENGER/CREW DOOR

DOORS D/O (3)

PASSENGER COMPARTMENT DOORS (continued)

EMERGENCY EXIT DOORS

On A318 and A319 aircraft are two Type III overwing emergency exits installed, one on each side of the fuselage.
The A320 aircraft has four Type III overwing emergency exit doors, two on each side of the fuselage.
In an emergency, these exits can be opened manually.
These emergency exits are of conventional plug type construction and contain a standard size passenger cabin window.
The A321 aircraft has four Type "C" emergency exits, one on each side of the fuselage sections 14A and 16A, between Fr 35.1 and 35.3A and between Fr 47.2A and 47.4. The structural design and operation of these plug-type exits is similar to the passenger doors.
In an emergency, these exits can be opened manually; they are operated like the passenger doors.
These emergency exits are of conventional plug-type construction.
A slide (or slide/raft) is installed in a compartment below each door.

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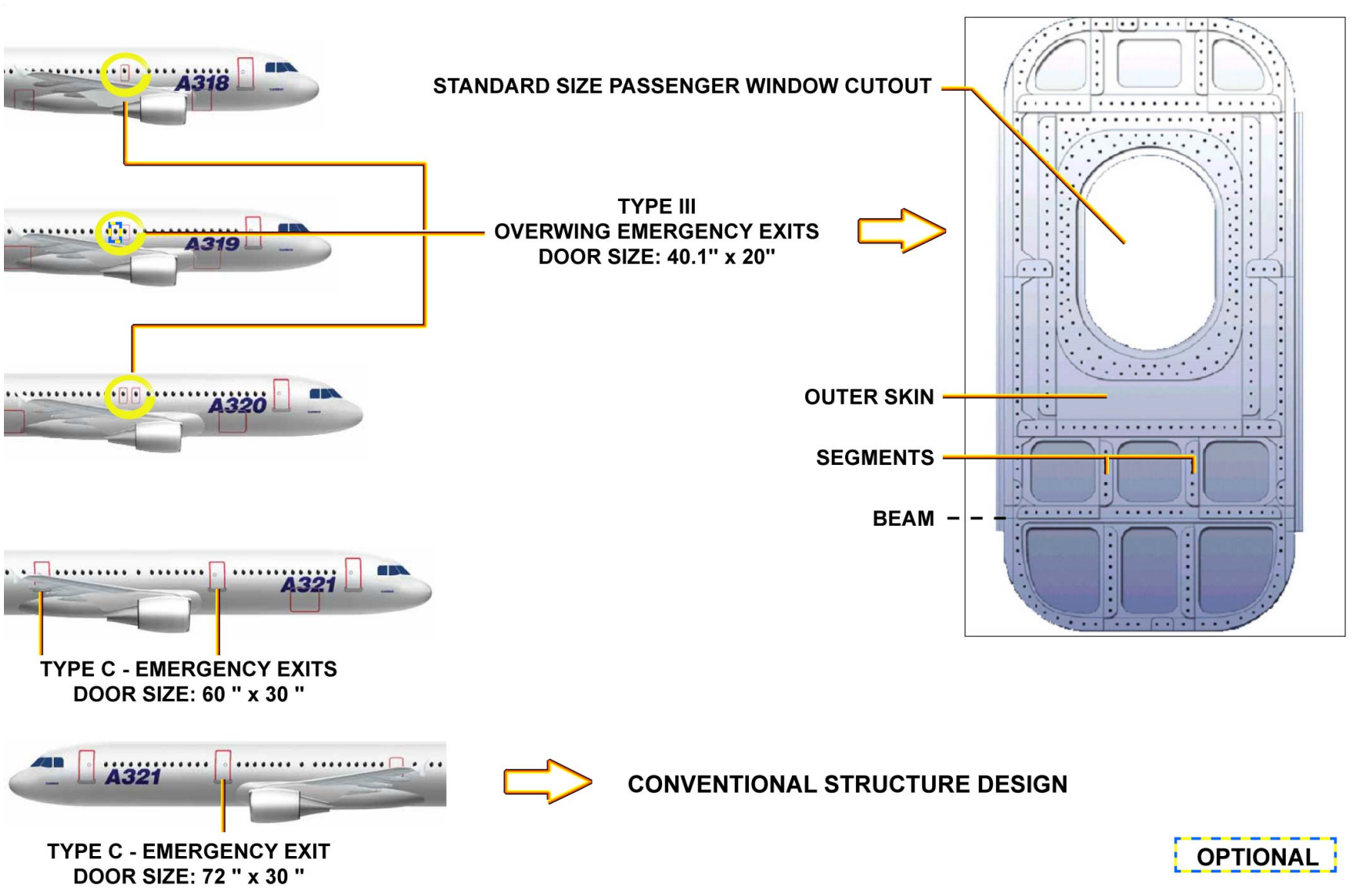

PASSENGER COMPARTMENT DOORS - EMERGENCY EXIT DOORS

DOORS D/O (3)

CARGO COMPARTMENT DOORS

FWD & AFT CARGO DOORS

Two doors in the lower RH side of the fuselage provide access to the main cargo compartments.
These doors are designed to carry loads from differential pressure and circumferential loads of the frames from the fuselage. With this consideration, they are of conventional design and have:
- an outer and inner skins,
- an internal structure of drop-forged machined circumferential frames.
The upper ends of these frames are connected to the hinges for the door, and the lower ends are attachment for the locking hooks. The A318 cargo doors cutout is reduced by 534 mm (one frame pitch).

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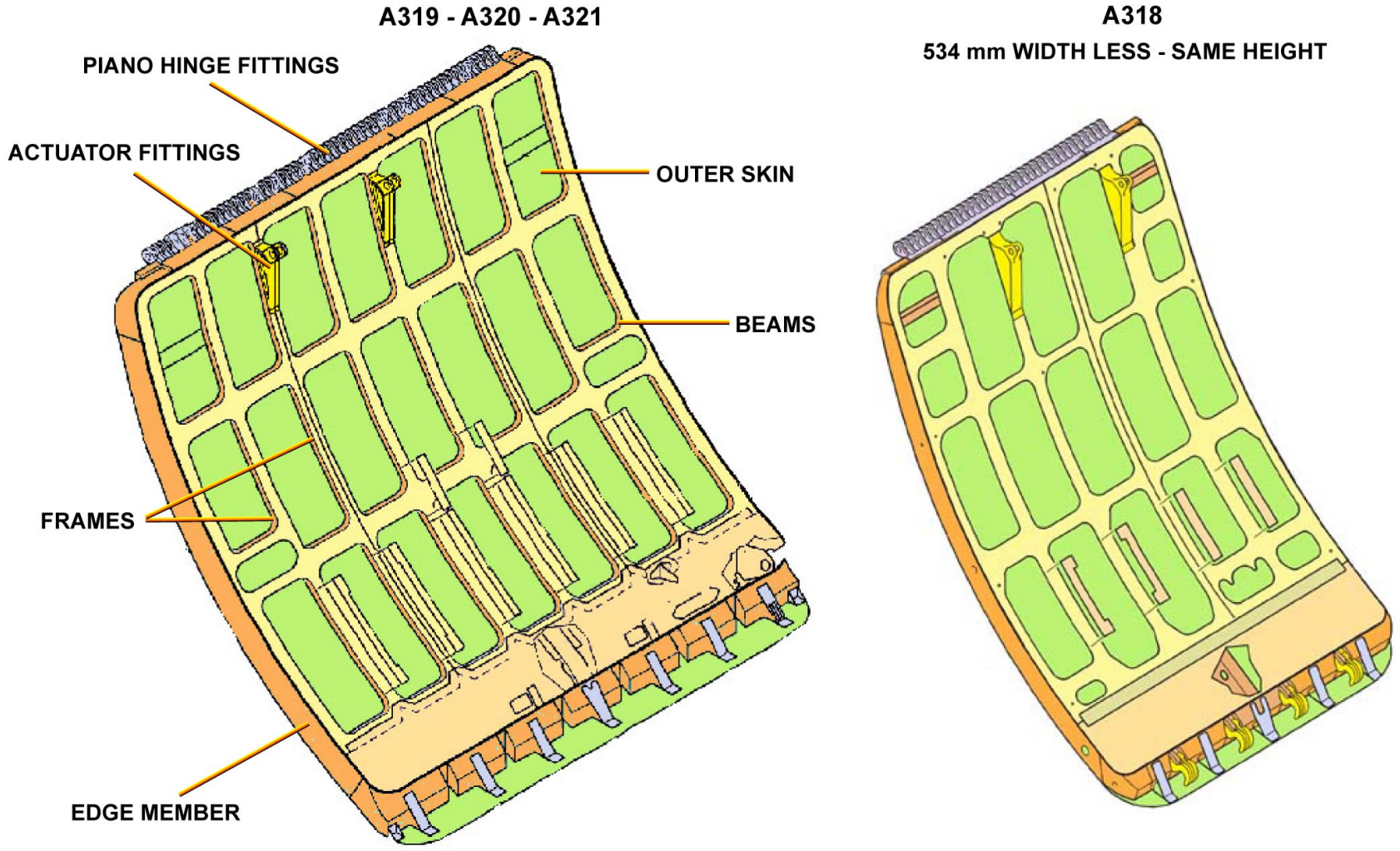
FORWARD CARGO DOORS SHOWN
AFT CARGO DOORS WITH THE SAME DESIGN PRINCIPLE



CARGO COMPARTMENT DOORS - FWD & AFT CARGO DOORS

DOORS D/O (3)

CARGO COMPARTMENT DOORS (continued)

BULK CARGO DOOR (A320 & A321 ONLY)

The bulk cargo compartment, at the rear, has a conventional plug-type door, located between Fr 60 and 62.
The door is operated, locked and unlocked manually and can be opened from the outside.
It is opened by pushing inward and upward and is locked in the open position onto the ceiling of the compartment. (In this compartment, nets are provided to maintain the clearance for the door opening). The weight of the door is compensated by a torsion bar. The door is connected to the door locking warning system.

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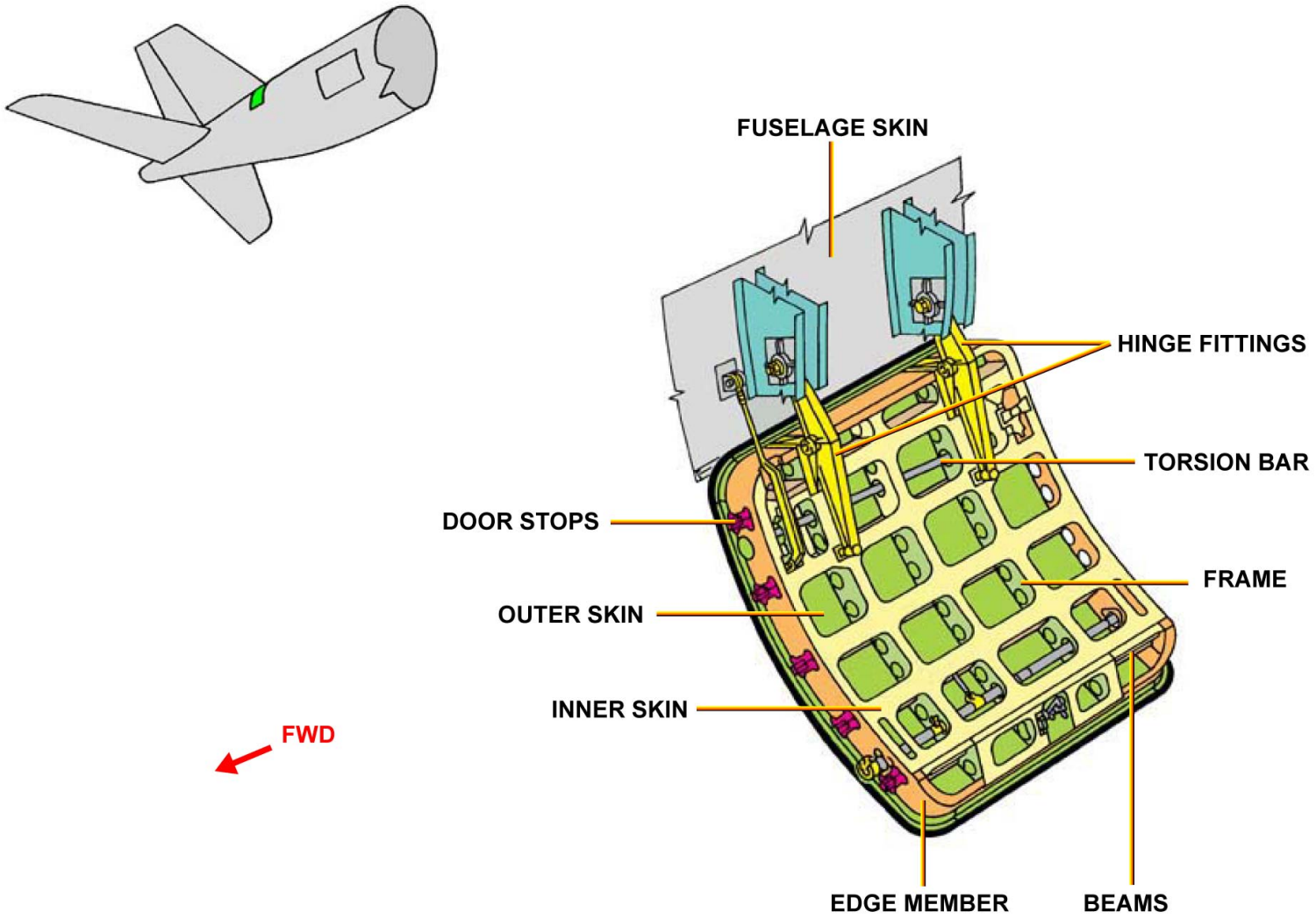


CARGO COMPARTMENT DOORS - BULK CARGO DOOR (A320 & A321 ONLY)

DOORS D/O (3)

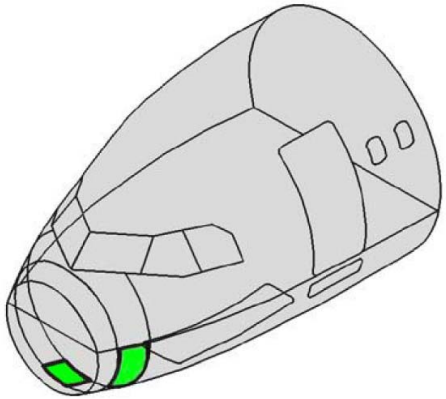
ACCESS & SERVICE DOORS

The access doors are installed in the aircraft for inspection of the structure and to give access to maintenance. Service doors are installed in the fuselage to give access to the servicing of systems.
All access and service doors are opened and closed manually.
Access and service doors are illustrated as follows:
- Avionics compartment door: there are four avionic compartment doors like the one illustrated. This avionics compartment access door is installed in the lower shell of the fuselage between Fr 3 and Fr 5 in a pressurized area. The door can be opened from the inside or the outside.
- APU doors: The APU access doors are installed in the fuselage tail cone in Zone 310. These doors are located in the lower part of the fuselage between Fr 80A and Fr 84A. The doors give you access to the APU for maintenance.

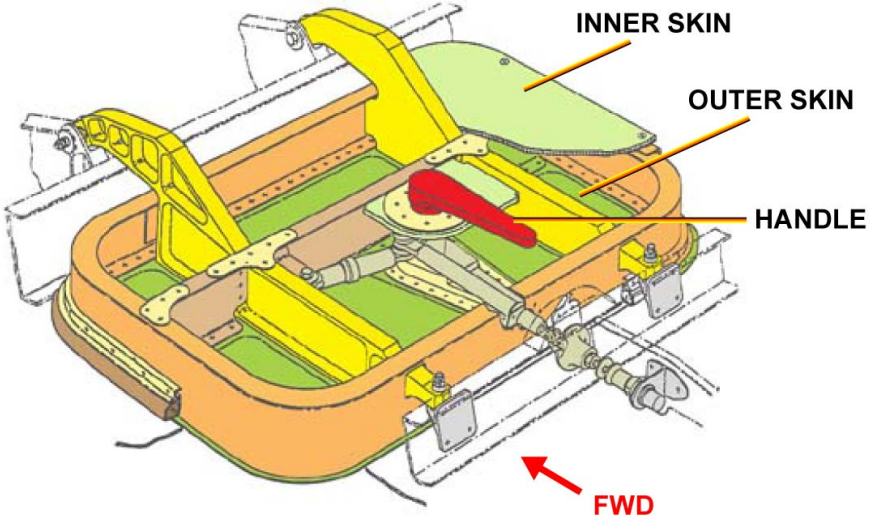
There are also access and service doors - not-illustrated: These doors are located in the fuselage and belly fairing for water, waste, external power and maintenance.

UGB13131 - U7ST0M0 - UM51D1000000001

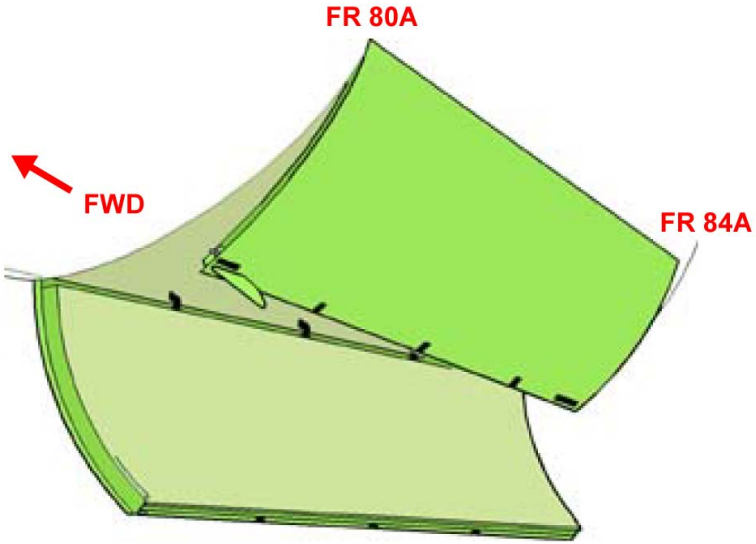
AVIONICS COMPARTMENT ACCESS DOOR



SKIN PANEL, FRAMES AND STRINGERS
ALUMINUM ALLOY



APU ACCESS DOORS



INNER SKIN TITANIUM ALLOY
OUTER SKIN ALUMINIUM ALLOY

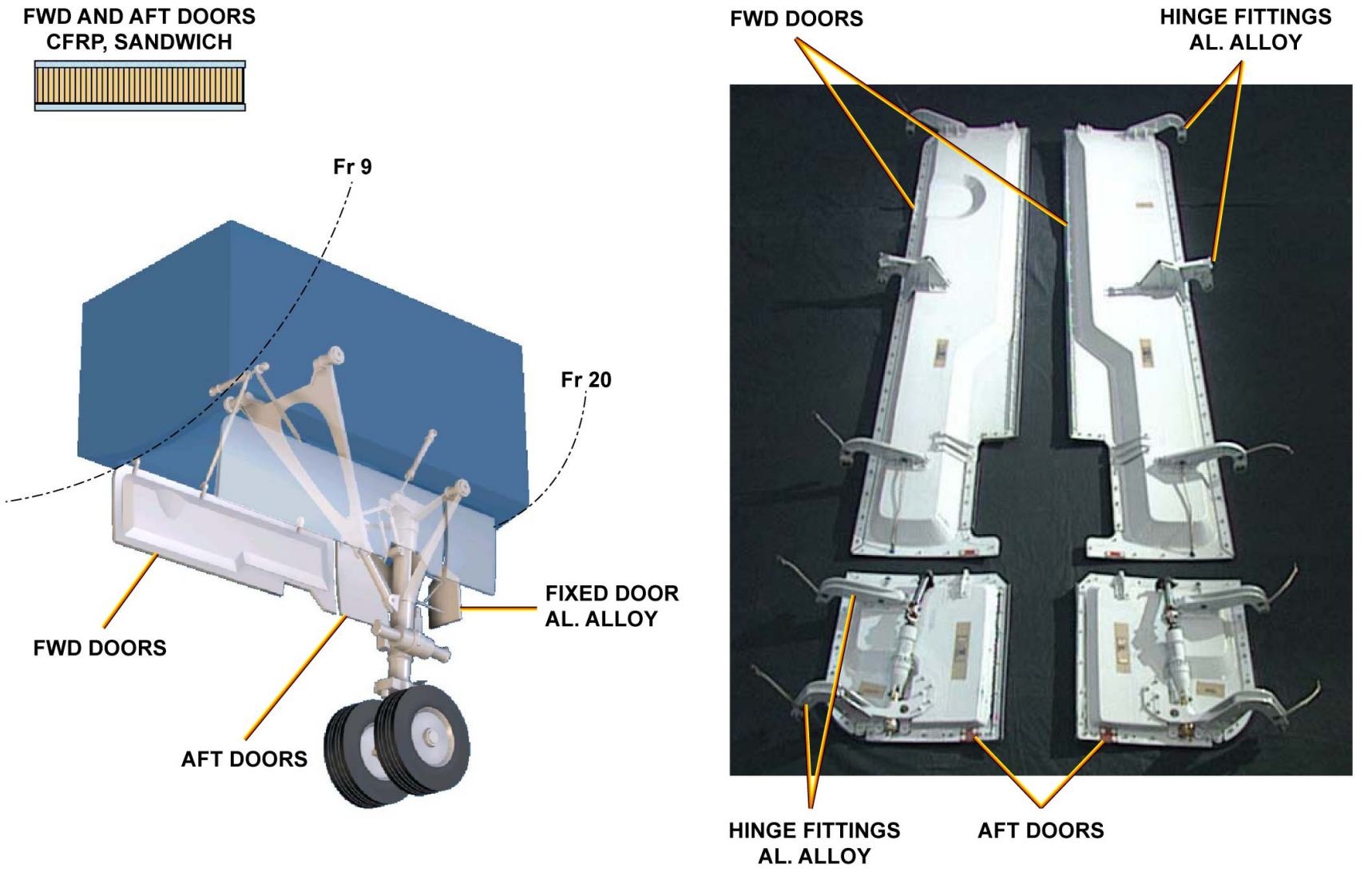
ACCESS & SERVICE DOORS

DOORS D/O (3)

LANDING GEAR DOORS

NOSE LANDING GEAR (NLG) DOORS

Landing gear doors give protection to the landing gear when the aircraft is in flight.
The nose and auxiliary landing gear doors have five parts:
- two forward doors, hydraulically actuated, which can be closed with the gear in the extended or retracted position. These doors are made from CFRP (Carbon Fiber Reinforced Plastic) sandwich materials with a honeycomb core. They are hinged to the landing gear bay longitudinal edges.
- two aft doors, linked to the gear by a rotating rod, which are made from CFRP sandwich materials with an honeycomb core. The purpose of these doors hinged to the landing gear bay rear lateral edge, is to allow the forward doors to be retracted when the gear is extended.
- one small door (fixed door) attached to the landing gear leg is made from aluminum alloy.



LANDING GEAR DOORS - NOSE LANDING GEAR (NLG) DOORS

DOORS D/O (3)

LANDING GEAR DOORS (continued)

MAIN LANDING GEAR (MLG) DOORS

The main landing gear doors are made from CFRP sandwich materials with a honeycomb core, and have three parts:
- a main door, hydraulically actuated, which is hinged to the fuselage keel beam parallel to the aircraft center line and can be closed with the gear in the extended or retracted position,
- a fairing attached to the gear leg (fixed fairing door),
- a small door hinged to the wing structure in the neighborhood of the upper end of the main leg (hinged fairing door).

All doors are part of the fuselage belly fairing and wing lower surface in closed position.

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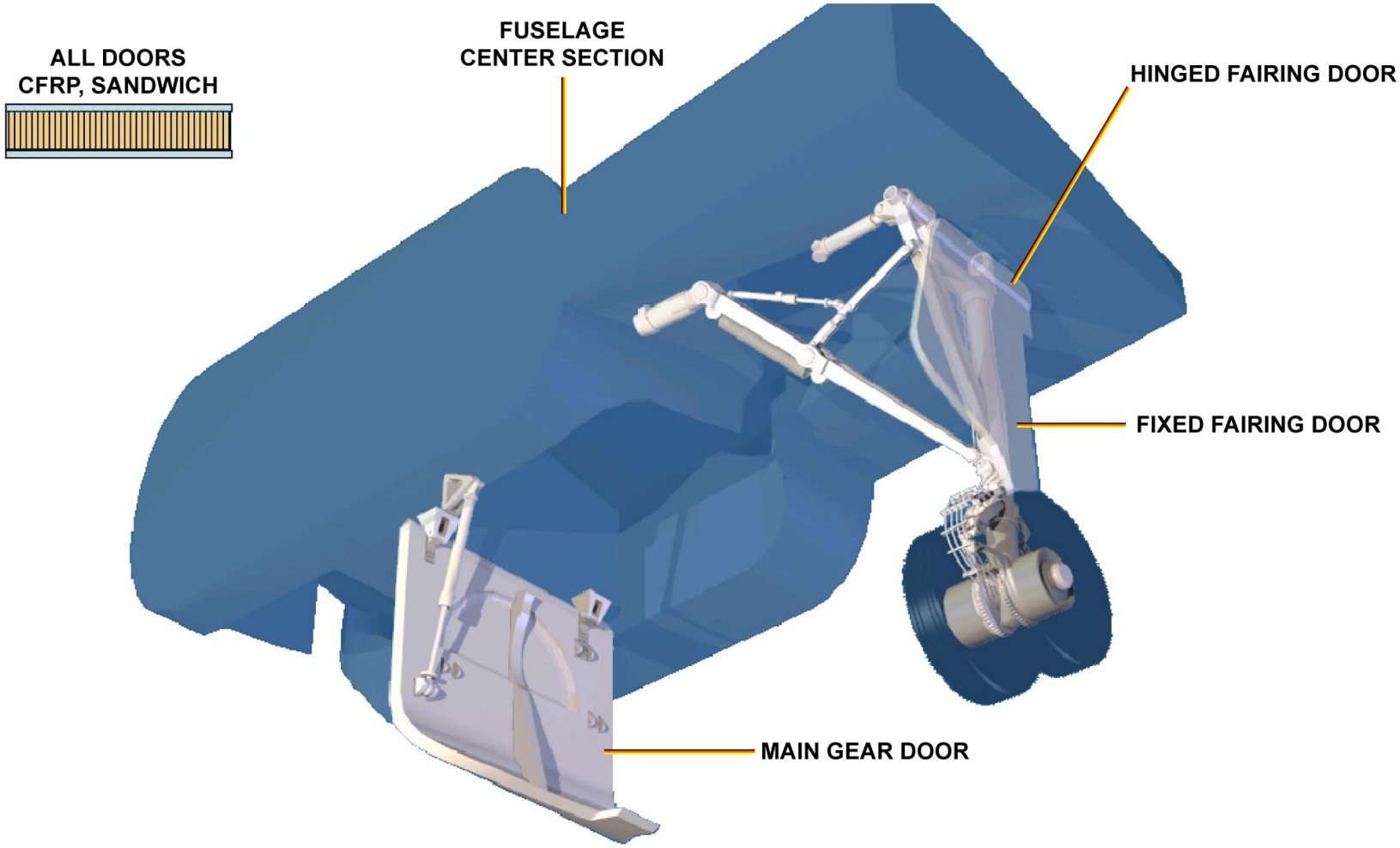


CFRP: Carbon Fiber Reinforced Plastic

LANDING GEAR DOORS - MAIN LANDING GEAR (MLG) DOORS

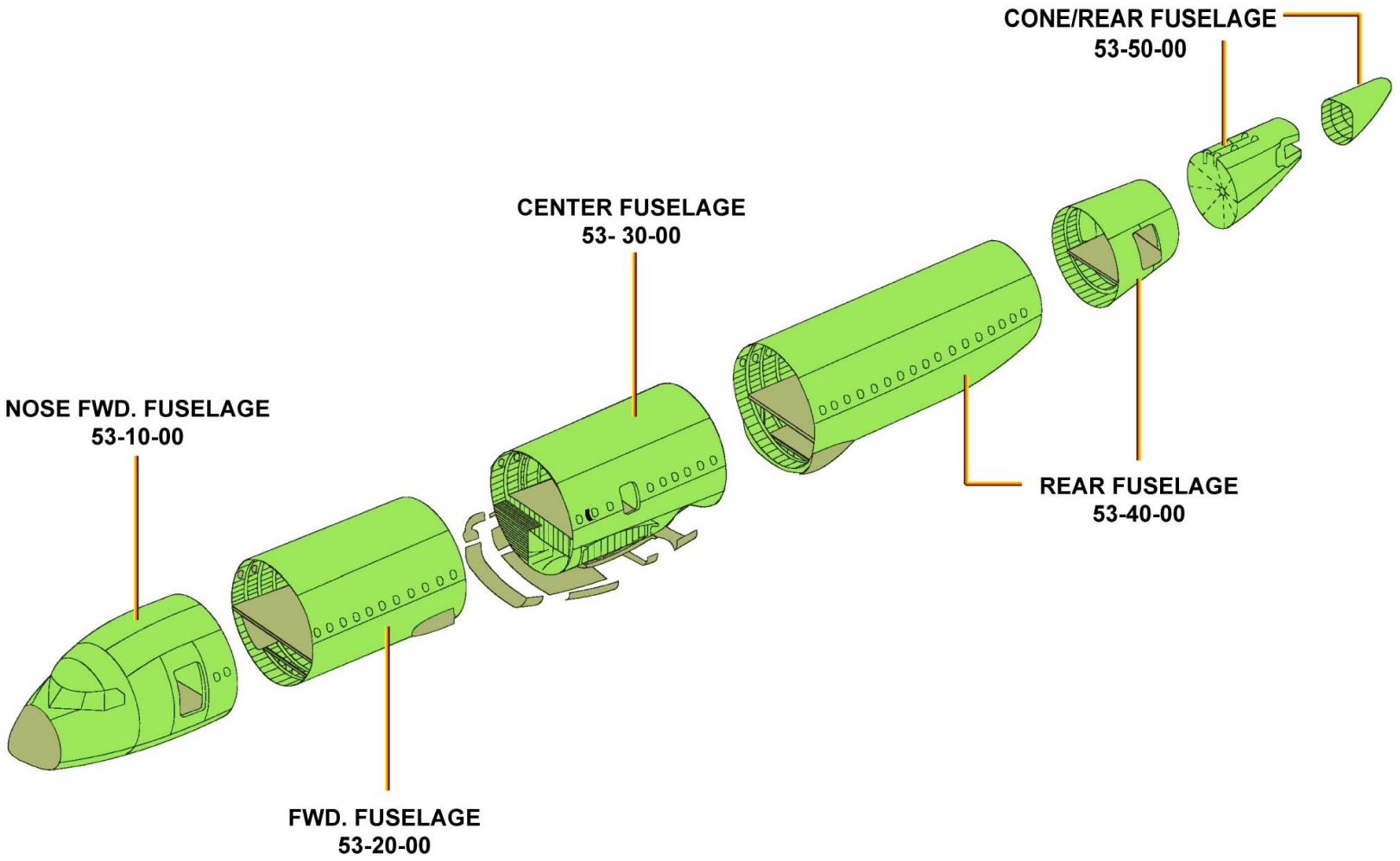
FUSELAGE D/O (3)

GENERAL

FUSELAGE LAYOUT

The fuselage is divided into five main parts:
- the nose forward fuselage (ATA 53-10-00),
- the forward fuselage (ATA 53-20-00),
- the center fuselage (ATA 53-30-00),
- the rear fuselage (ATA 53-40-00),
- and the cone/rear fuselage (ATA 53-50-00).

UGB13131 - U7ST0M0 - UM51D2000000001



GENERAL - FUSELAGE LAYOUT

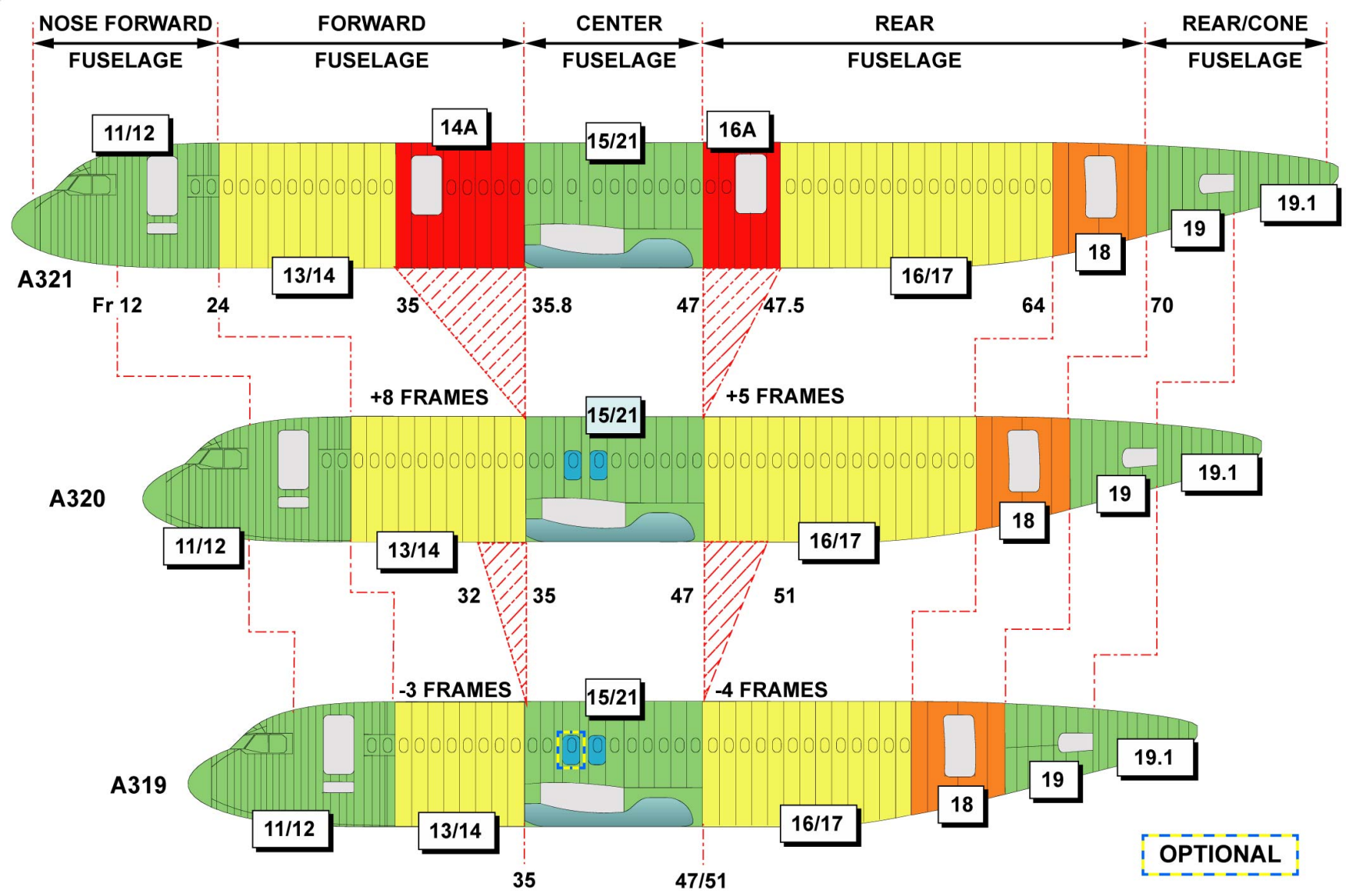
FUSELAGE D/O (3)

GENERAL (continued)

FUSELAGE BREAKDOWN

Compared with the A320, the A321 forward fuselage is eight frame bays longer (additional section 14A, extending between frames (Fr) 35 and 35.8).
The A321 rear fuselage is five frame bays longer (additional section 16A, extending between Fr 47 and Fr 47.5.
Compared with the A320, the A319 forward fuselage (section 13/14) and the rear fuselage (section 16/17) are respectively three frame bays and four frame bays shorter.
To fulfil an optional request of cabin capacity of at least 160 passengers on A319, a second emergency exit is installed, both side, in section 15.

UGB13131 - U7ST0M0 - UM51D2000000001



GENERAL - FUSELAGE BREAKDOWN

UGB13131 - U7ST0M0 - UM51D2000000001

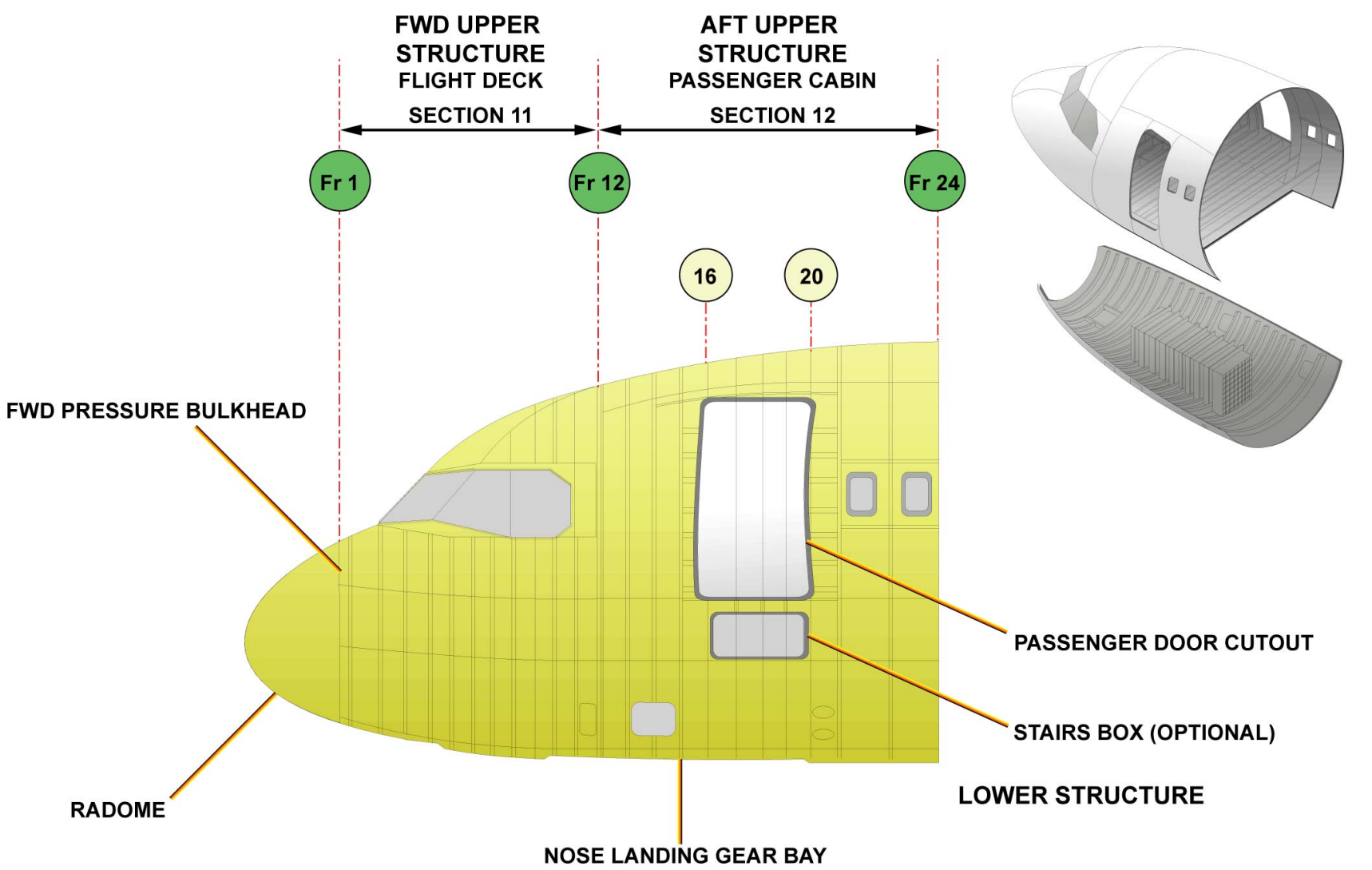
FUSELAGE D/O (3)

NOSE FORWARD FUSELAGE

GENERAL ARRANGEMENT

The nose forward fuselage includes section 11, between Fr 1 and Fr 12, and section 12, from Fr 12 to Fr 24.
The pressurized zone extends from Fr 1 to Fr 24.
The unpressurized zones are the radome, forward of Fr 1 and the nose landing gear bay.
The structure of the nose forward fuselage has three parts:
- the forward upper structure, between Fr 1 and 11, which makes the flight deck,
- the aft upper structure, between Fr 12 and 24, which makes the forward part of the passenger cabin,
- the lower structure between Fr 1 and 24.

UGB13131 - U7ST0M0 - UM51D2000000001



NOSE FORWARD FUSELAGE - GENERAL ARRANGEMENT

FUSELAGE D/O (3)

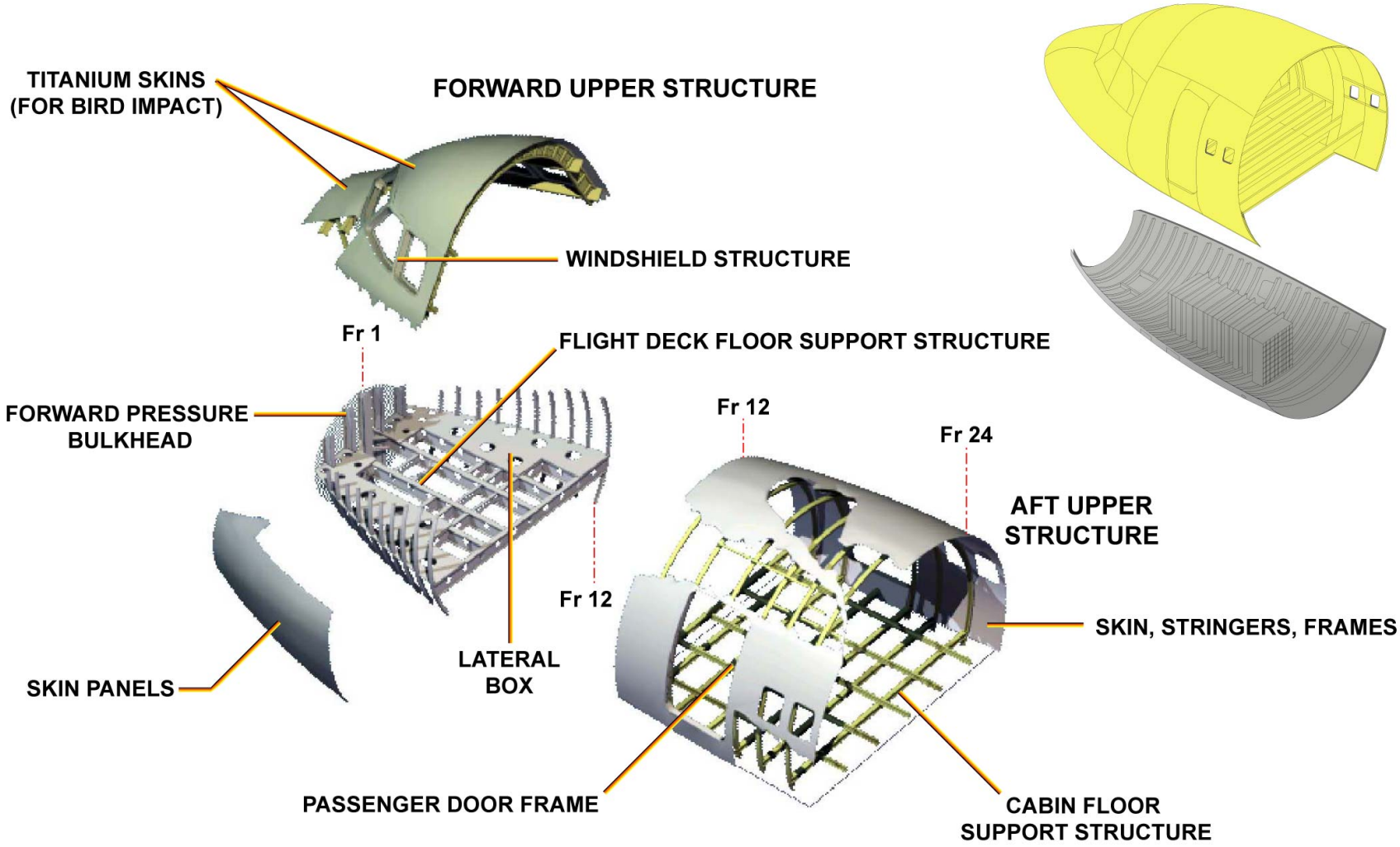
NOSE FORWARD FUSELAGE (continued)

FORWARD & AFT UPPER STRUCTURES

The forward upper structure between Fr 1 and Fr 12 includes:
- closed frames,
- opened frames at level of openings for windshield and side windows,
- the forward pressure bulkhead,
- the flight deck floor support structure including two lateral boxes,
- the skin panels and the windshield frames,

The skin panels just above and below the windshield are made of titanium alloy for bird impact requirements.
The aft upper structure, between Fr 12 and Fr 24, is the forward passenger compartment and contains:
- the forward passenger/crew door between Fr 16 and 20,
- conventional assembly of skin, stringers and frames,
- the floor support structure.

UGB13131 - U7ST0M0 - UM51D2000000001



NOSE FORWARD FUSELAGE - FORWARD & AFT UPPER STRUCTURES

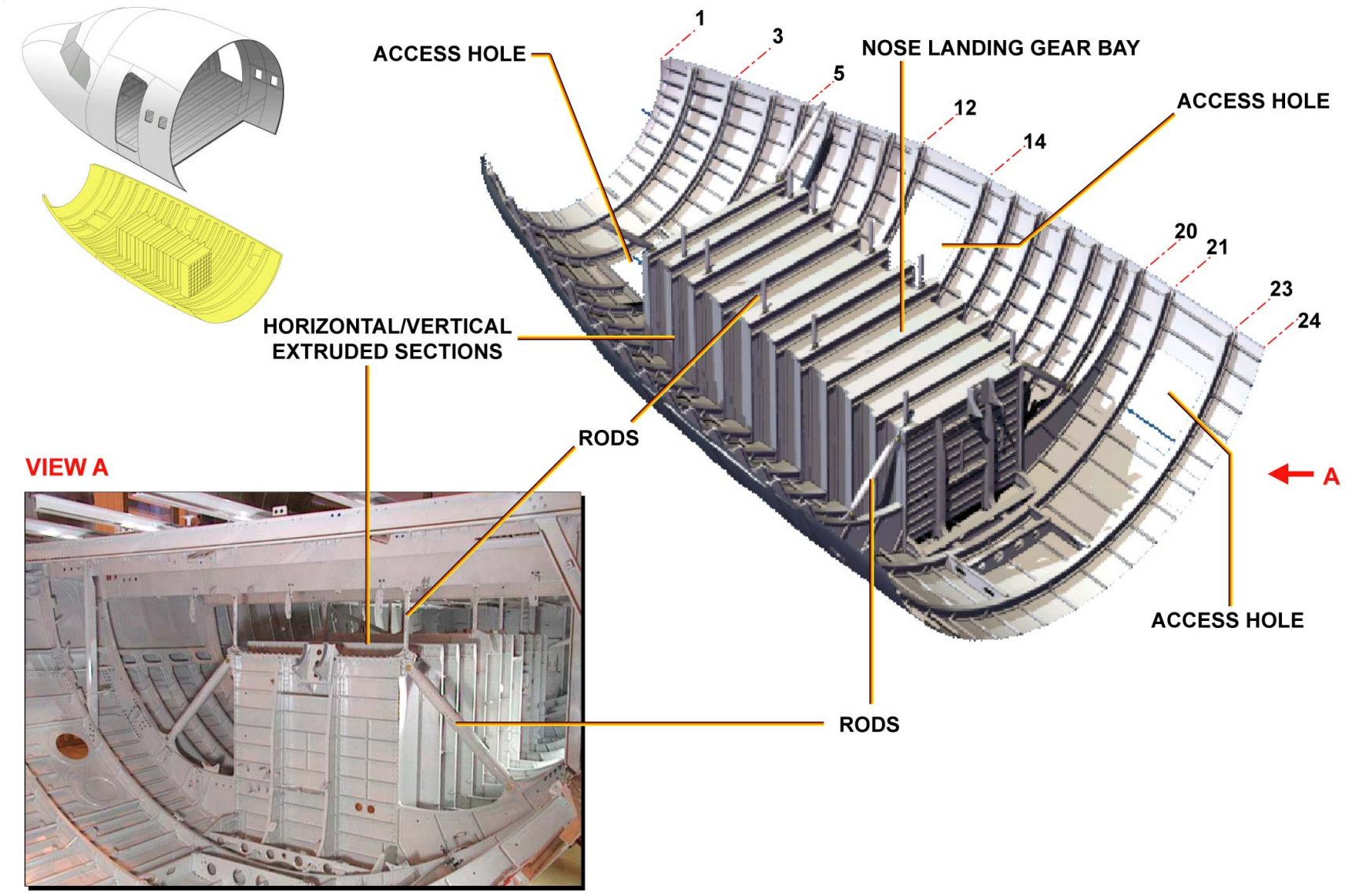
FUSELAGE D/O (3)

NOSE FORWARD FUSELAGE (continued)

LOWER STRUCTURE

This part of section 11/12 contains the nose landing gear bay, access and service door cutouts.
The nose landing gear bay is shaped by three machined panels reinforced by horizontal and vertical extruded sections attached to the corresponding frames. The lower parts of Fr 9 and Fr 20 are the forward and rear limits of the gear bay.
The lower fuselage comprises three skin panels. The central panel has an opening for access between Fr 3 and 5 and the opening for the nose landing gear bay between Fr 9 and 20.
The right hand side panel has two openings for access, between Fr 12 and 14 and Fr 21 and 23.

UGB13131 - U7ST0M0 - UM51D2000000001



NOSE FORWARD FUSELAGE - LOWER STRUCTURE

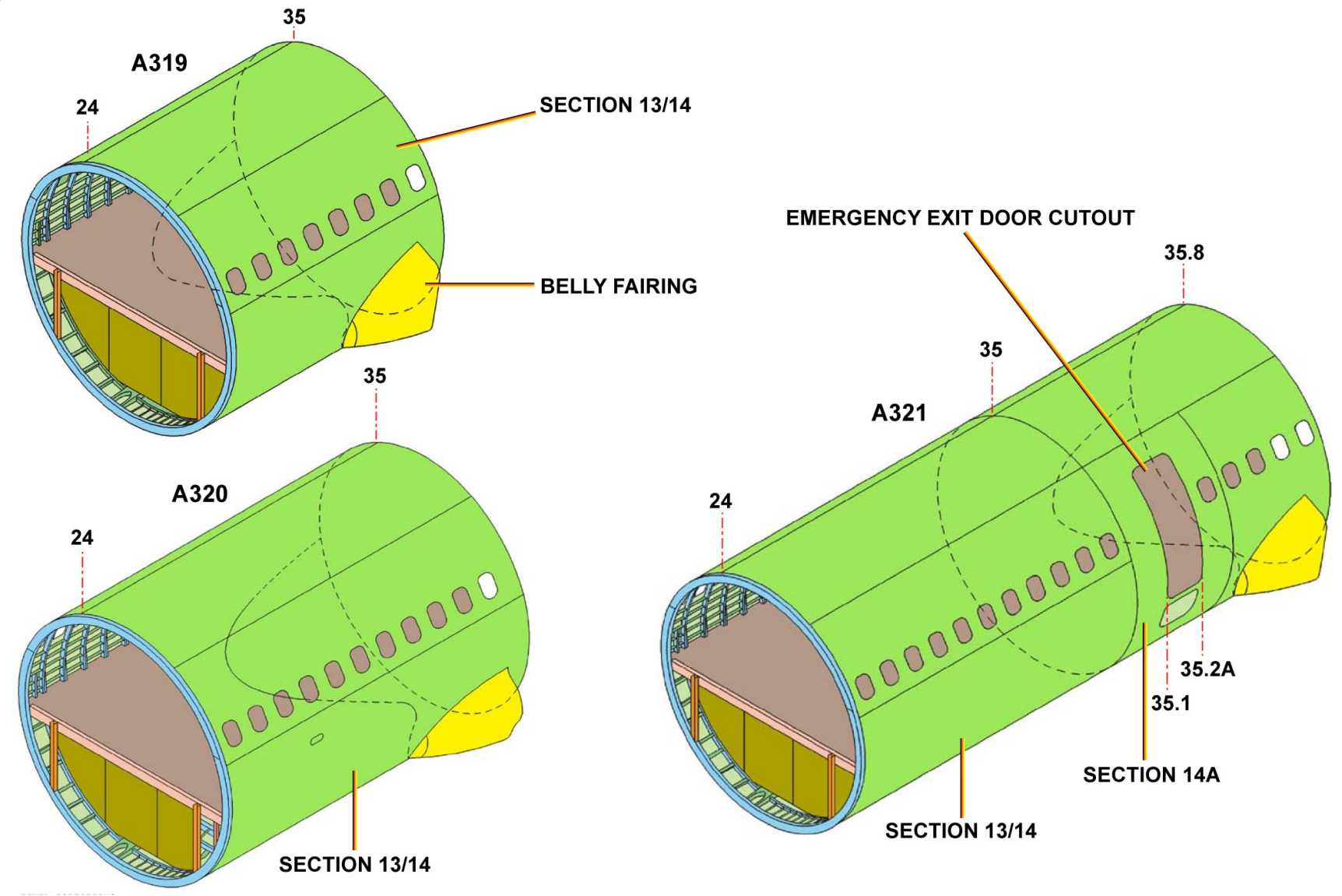
FUSELAGE D/O (3)

FORWARD FUSELAGE

GENERAL ARRANGEMENT

This area of the fuselage lies between Fr 24 and Fr 35.
It contains the front part of the passenger cabin and beneath the cabin floor and the forward cargo compartment. The forward cargo door is on the starboard side.
The A321 section 14A extends from Fr 35 to Fr 35.8.
Section 14A is of similar construction to section 13/14 but includes the emergency exit cut-outs (one on each side of the fuselage) between Fr 35.1 and Fr 35.2A.

UGB13131 - U7ST0M0 - UM51D2000000001



FORWARD FUSELAGE - GENERAL ARRANGEMENT

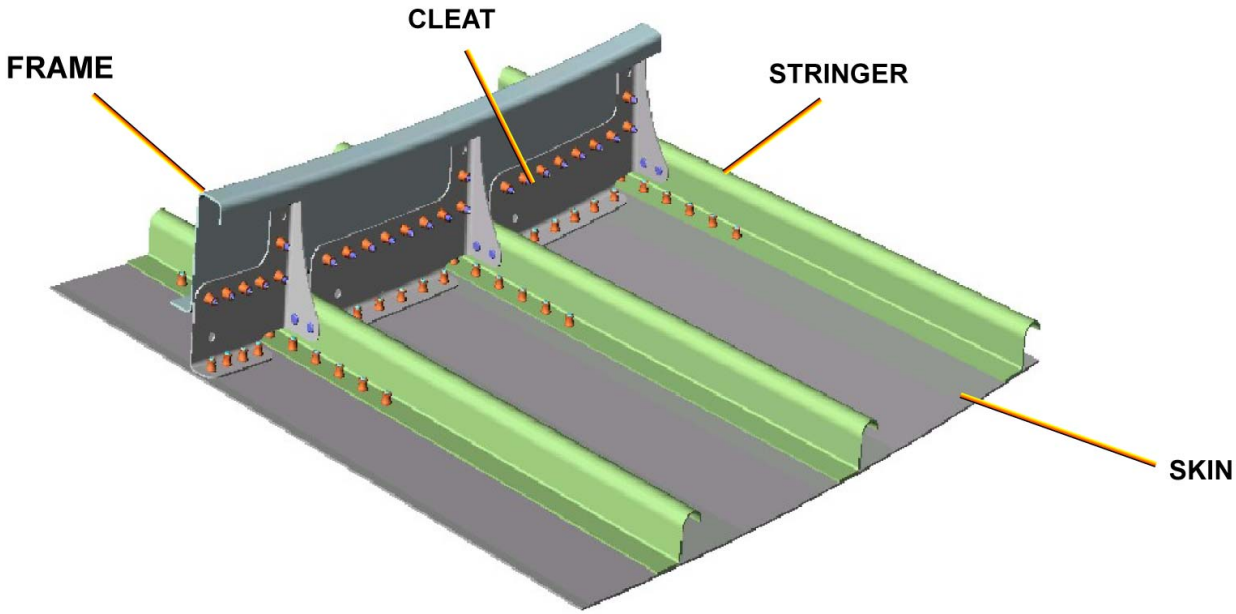
FUSELAGE D/O (3)

FORWARD FUSELAGE (continued)

TYPICAL STRUCTURE

This section is of conventional construction mainly composed of chemically milled skin panels, frames made from sheet metal and extruded stringer profiles.
The standard frames have a common Z-shaped section made from formed sheet, which provides a continuous structural member attached to the skin and stringers by means of sheet metal cleats.
The structure of the cabin floor has:
- cross beams,
- seat tracks,
- floor support struts,
- floor panels.

UGB13131 - U7ST0M0 - UM51D2000000001



FRAME/CLEAT : RIVETED
CLEAT/SKIN : RIVETED
STRINGER/SKIN: RIVETED

FORWARD FUSELAGE - TYPICAL STRUCTURE

FUSELAGE D/O (3)

FORWARD FUSELAGE (continued)

LONGITUDINAL SKIN JOINTS

The longitudinal joints are generally longitudinal lap joints with three rivet - row joints.
As the skin is, in most areas, 1.6 thick, it is reinforced by bonded doubler straps of at least 0.6 mm to allow countersunk riveting. For chemical milled skins the maximum thickness is at least 2.2 mm in the joint areas.
In addition, at each intersection of frames and lap joints, a 1 mm titanium alloy strap has been added to provide good damage tolerance capabilities.

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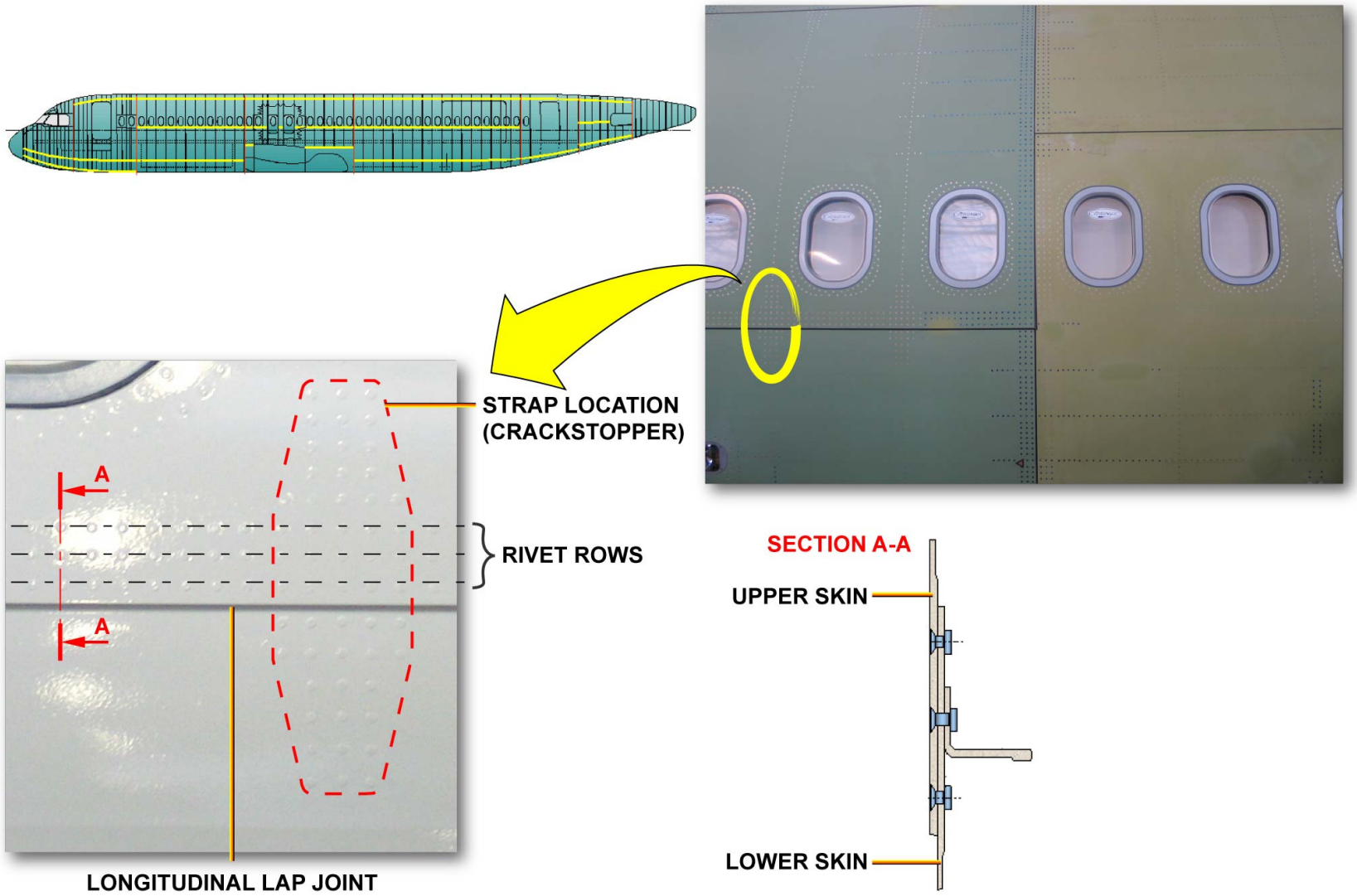


FORWARD FUSELAGE - LONGITUDINAL SKIN JOINTS

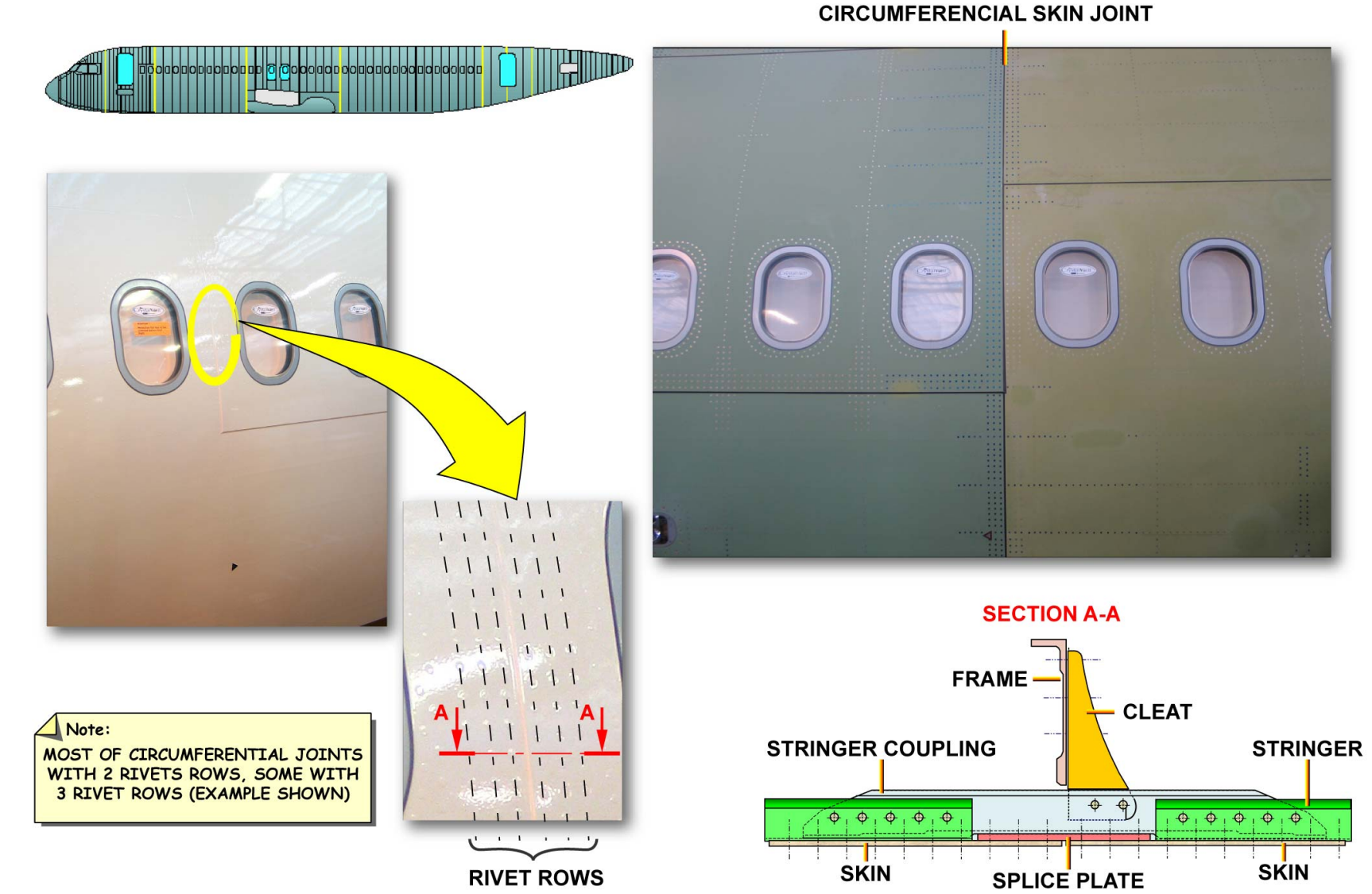
FUSELAGE D/O (3)

FORWARD FUSELAGE (continued)

CIRCUMFERENTIAL SKIN JOINTS

At the typical joints the skin panels are connected by a circumferential strap and three rivet rows. The stringers are coupled by joint pieces. In the region of the circumferential joints all stringers are riveted to the skin.

UGB13131 - U7ST0M0 - UM51D2000000001



FORWARD FUSELAGE - CIRCUMFERENTIAL SKIN JOINTS

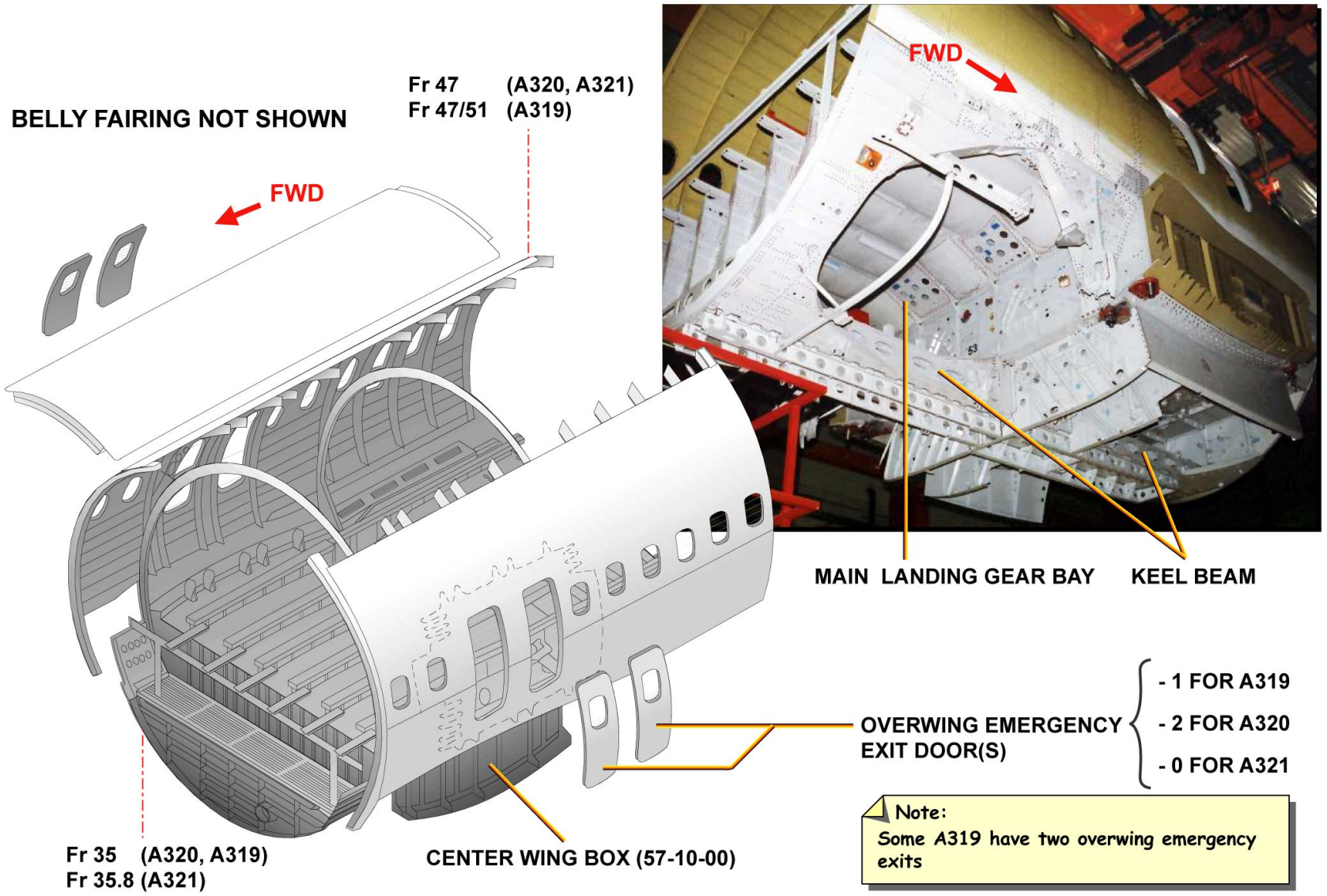
FUSELAGE D/O (3)

CENTER FUSELAGE

GENERAL ARRANGEMENT

The fuselage center section (section 15) extends from Fr 35 to Fr 47 for A320, from Fr 35.8 to Fr 47 for A321 and from Fr 35 to Fr 47/51 for A319.
The upper section includes part of the passenger compartment.
The passenger floor structure is made of longitudinal beams, seat and support tracks, support struts and floor panels.
The lower section is non-pressurized and integrates:
- the center wing box which extends across the width of the fuselage. The two main frames 36 and 42 are also part of the center wing box,
- the main landing gear bay between Fr 42 and Fr 46,
- the keel beam which keeps the longitudinal structural continuity of the lower fuselage,
- the belly fairing supporting structure, panels and doors.

UGB13131 - U7ST0M0 - UM51D2000000001



CENTER FUSELAGE - GENERAL ARRANGEMENT

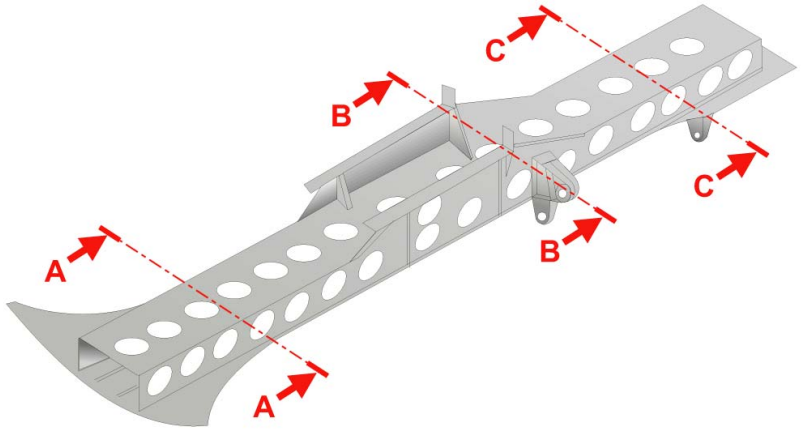
FUSELAGE D/O (3)

CENTER FUSELAGE (continued)

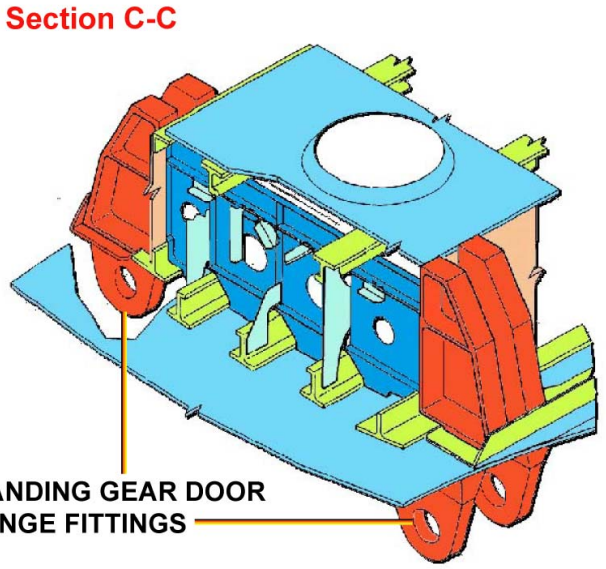
KEEL BEAM

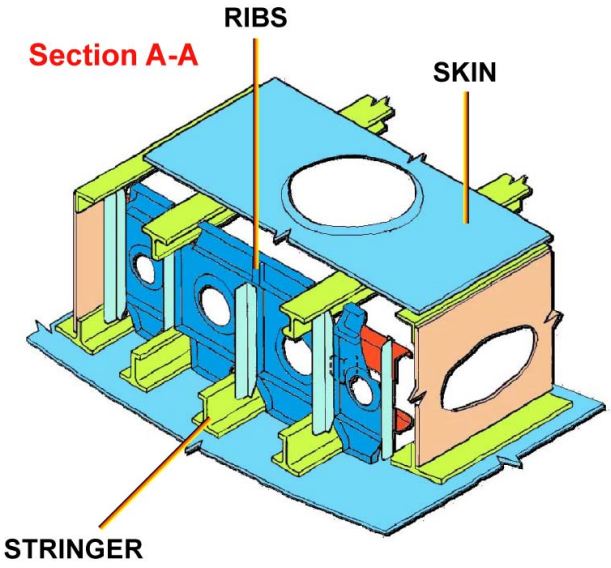
The longitudinal structural continuity of the lower fuselage in this area is maintained by the keel beam.
This beam is an aluminum alloy box structure, including skins, stringers and ribs, and provides attachments for the main landing gear doors and door actuators.
In its center area, the keel beam side walls are connected to the wing-box aft lower panel.

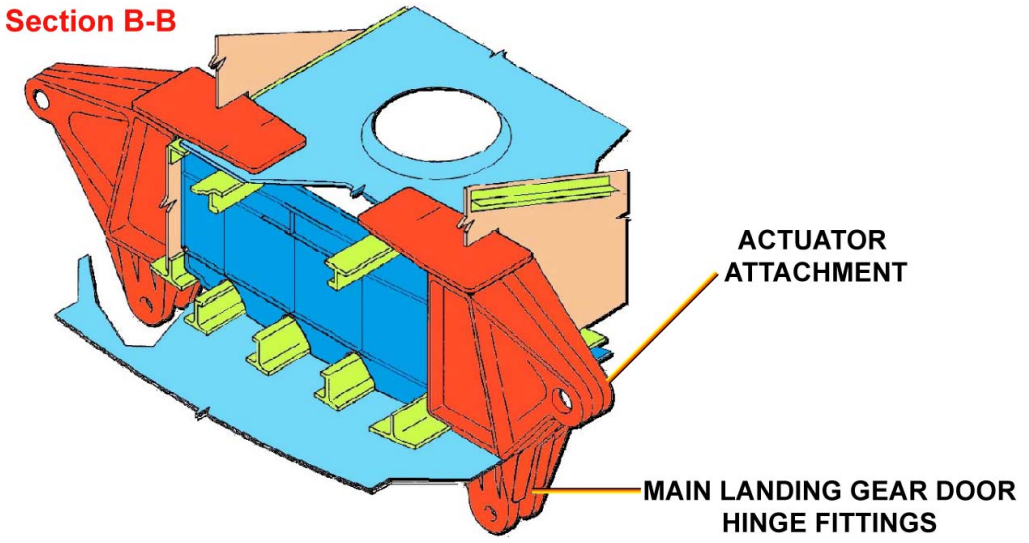
UGB13131 - U7ST0M0 - UM51D2000000001



TYPICAL ALUMINUM ALLOY ASSEMBLY
(SKINS, STRINGERS AND RIBS)







CENTER FUSELAGE - KEEL BEAM

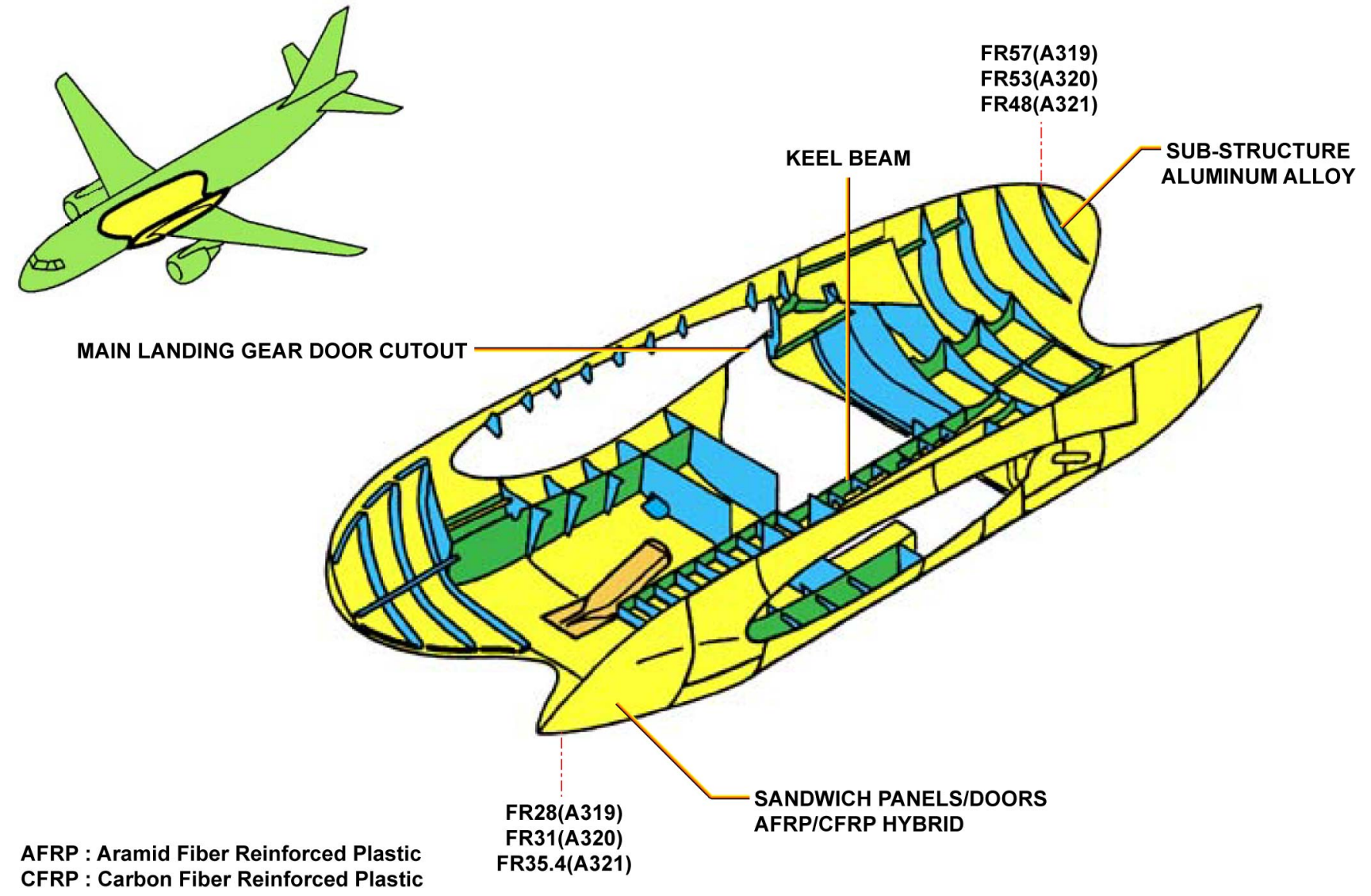
FUSELAGE D/O (3)

CENTER FUSELAGE (continued)

BELLY FAIRING

The belly fairing includes a substructure made of aluminum alloy frames and webs which are attached to the fuselage via fittings and rods.
This substructure supports the panels made of composite materials.
The belly fairing also includes the landing gear doors, external access panels and access doors for maintenance.

UGB13131 - U7ST0M0 - UM51D2000000001



CENTER FUSELAGE - BELLY FAIRING

UGB13131 - U7ST0M0 - UM51D2000000001

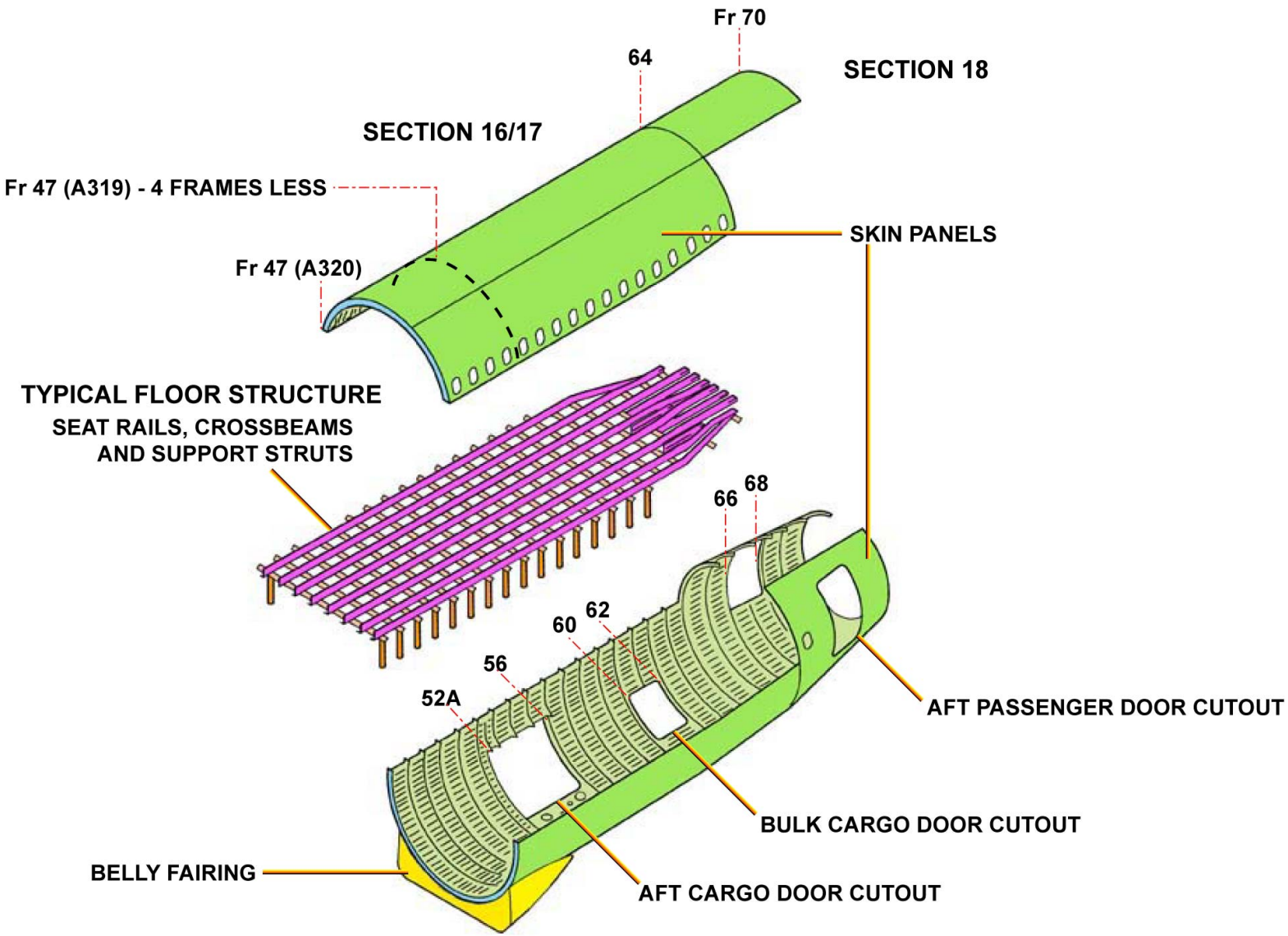
FUSELAGE D/O (3)

REAR FUSELAGE - A319 & A320 GENERAL ARRANGEMENT

The rear fuselage assembly is a pressurized area, which extends from Fr 47 to Fr 70.
The A319 and A320 rear fuselage is divided into two sections (the A321 has an additional section 16A):
- section 16/17 between Fr 47 and Fr 64,
- section 18 between Fr 64 and Fr 70.

Section 16/17 is shorter by four frames than on the A320.
The upper part of the fuselage contains the aft section of the passenger cabin and the aft passenger/crew doors located between Fr 66 and Fr 68.
The lower part contains the aft cargo compartment. The aft cargo compartment door is installed between Fr 52A and Fr 56 (RH side); the bulk cargo compartment door is installed between Fr 60 and Fr 62 (RH side).
The design of section 16/17 is similar to that of forward fuselage sections (typical skin, stringer and frame arrangement).
Skin panels of the lower area have support attachment structures for the belly fairing rear part.

UGB13131 - U7ST0M0 - UM51D2000000001



REAR FUSELAGE - A319 & A320 GENERAL ARRANGEMENT

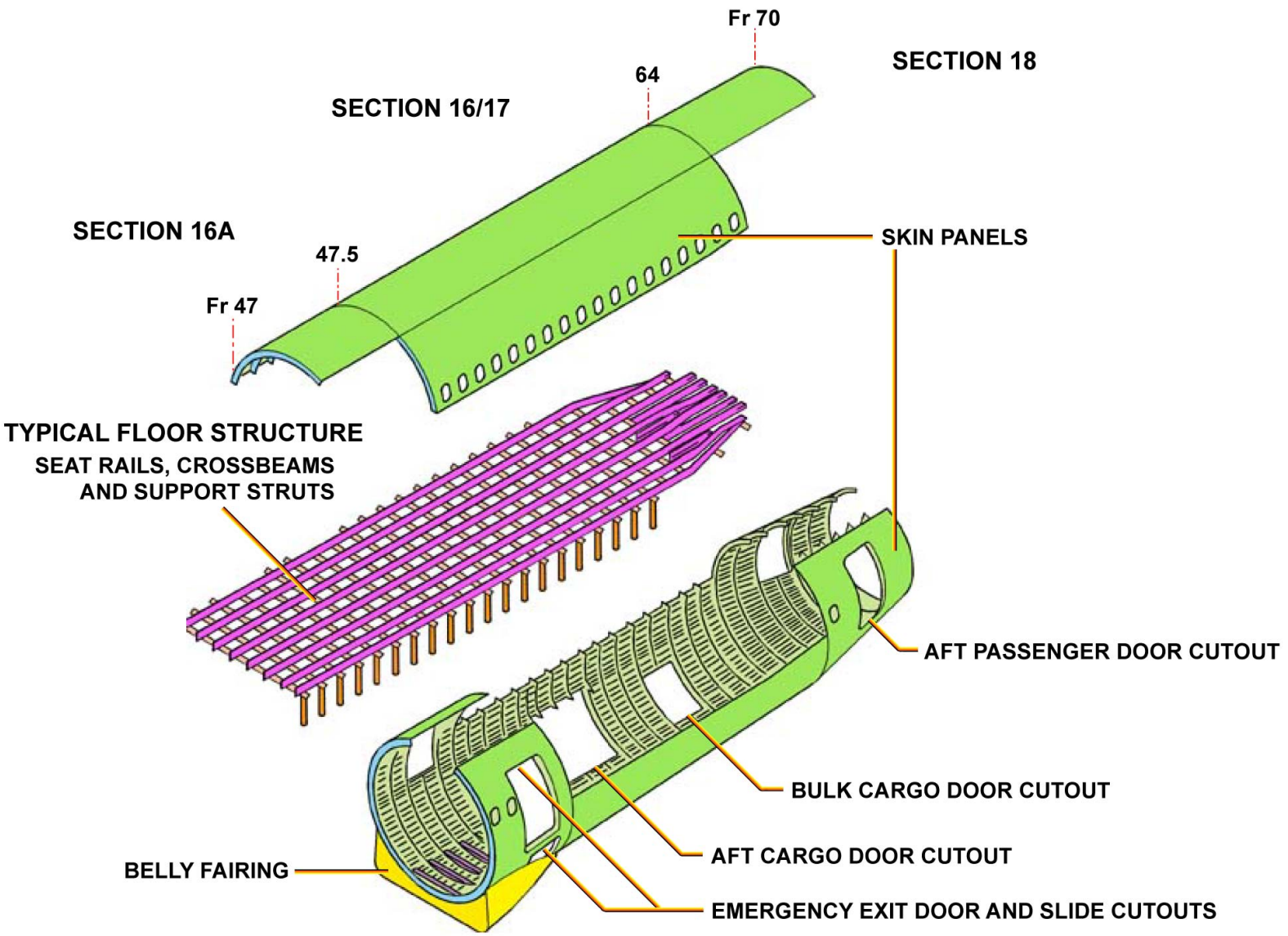
FUSELAGE D/O (3)

REAR FUSELAGE - A321 GENERAL ARRANGEMENT

The A321 rear fuselage assembly is a pressurized area, which extends from Fr 47 to Fr 70.
The A321 rear fuselage is divided into three sections:
- section 16/17 and 18 which are similar to the A320,
- section 16A,

The section 16A includes the passenger cabin part in the upper section, and beneath the cabin floor, the forward part of the rear cargo compartment.
The section 16A is of similar construction to section 16/17 but includes the emergency exit cut-outs (one on each side of the fuselage) between Fr 47.2A and Fr 47.4.The slide is installed in a separate compartment below each door.

UGB13131 - U7ST0M0 - UM51D2000000001



REAR FUSELAGE - A321 GENERAL ARRANGEMENT

FUSELAGE D/O (3)

CONE/REAR FUSELAGE

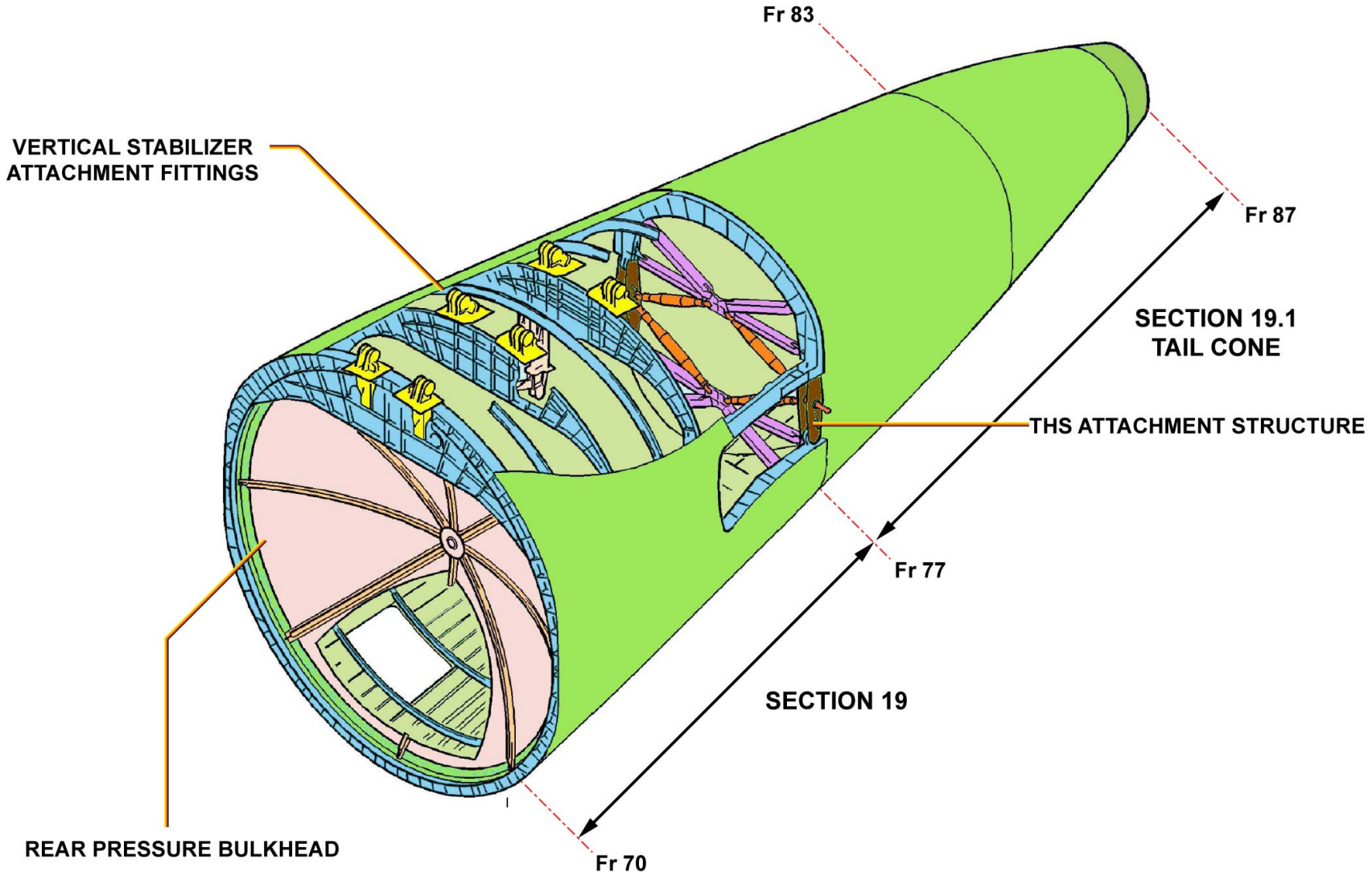
GENERAL ARRANGEMENT

This section comprises the un-pressurized part of the rear fuselage extending from Fr 70 to Fr 87.
It includes:
- the mounting structures for the vertical and horizontal stabilizers,
- the rear pressure bulkhead,
- a support pad used during jacking operations,
- attachment structure for the tail cone, which houses the Auxiliary Power Unit (APU).

It is divided into two main sections:
- section 19 between Fr 70 and Fr 77,
- section 19.1(tail cone) aft of Fr 77.

Section 19 is composed of chemically milled skins, riveted stringers and frames.
The side skin panels include the horizontal stabilizer cut-out. The lower panel has an access door for this section where a maintenance floor is installed.

UGB13131 - U7ST0M0 - UM51D2000000001



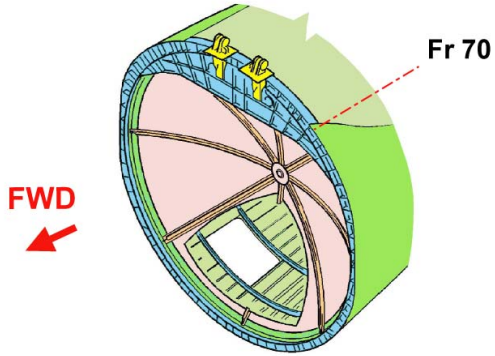
CONE/REAR FUSELAGE - GENERAL ARRANGEMENT

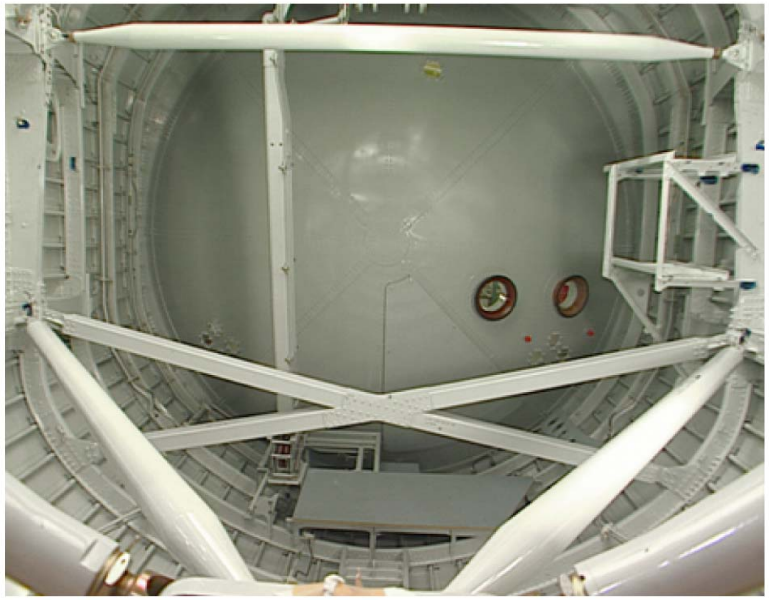
FUSELAGE D/O (3)

CONE/REAR FUSELAGE (continued)

REAR PRESSURE BULKHEAD

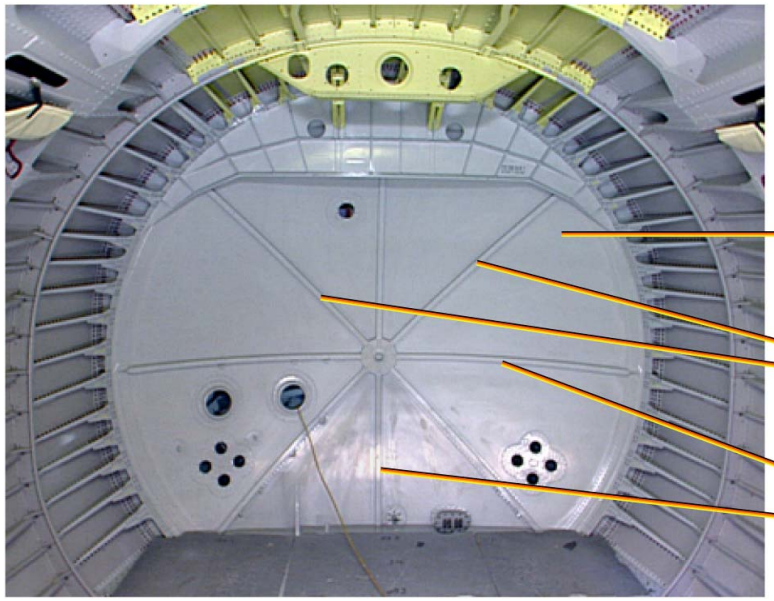
The rear pressure bulkhead installed at Fr 70, divides the pressurized rear fuselage from the cone/rear fuselage, which is not pressurized. It is made of a spherical membrane, and four aluminum alloy sheet segments joined together on the inner surface by means of four "I" profile sections. Four additional "I" profile radial stiffeners are also installed.





AFT FACE

FWD FACE



CONE/REAR FUSELAGE - REAR PRESSURE BULKHEAD

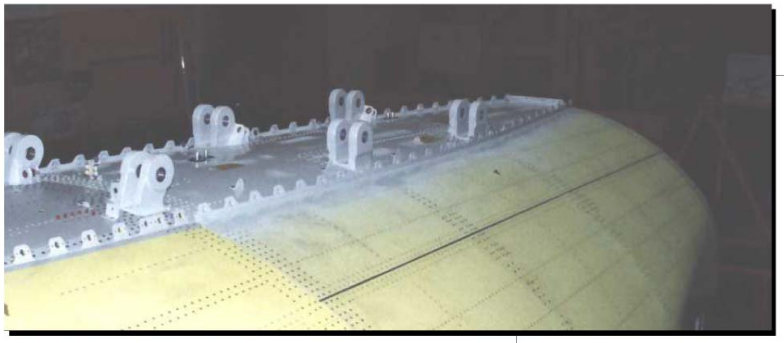
FUSELAGE D/O (3)

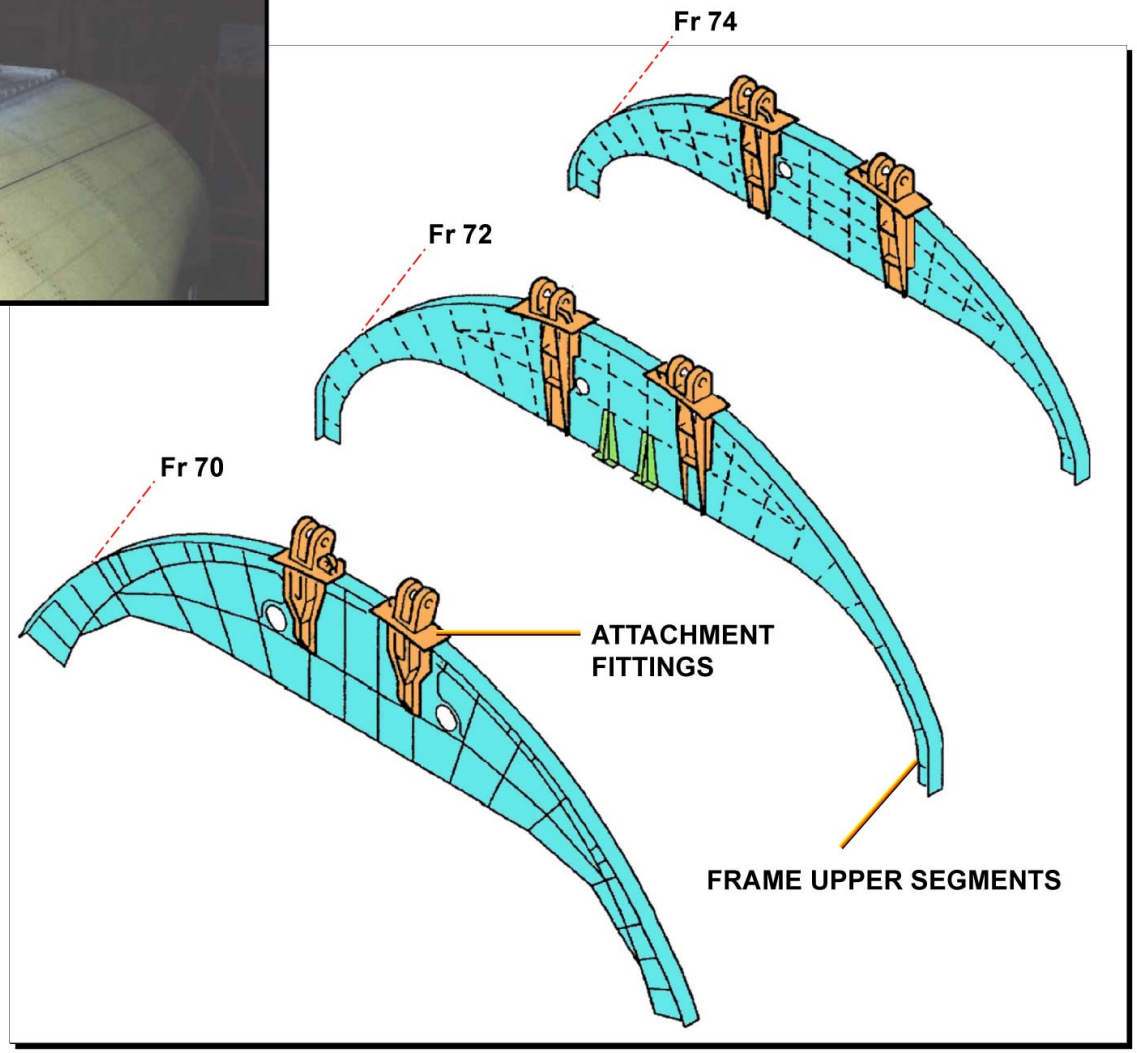
CONE/REAR FUSELAGE (continued)

VERTICAL STABILIZER ATTACHMENT FITTINGS

The vertical stabilizer spar box attachment fittings are located at Fr 70, Fr 72 and Fr 74.
They have six fail safe yokes, which transmit the vertical and longitudinal stabilizer loads into the fuselage frames via shear bolts.
Transversal loads are transmitted via rods between stabilizer and attachment fittings.
The frame 70 is fully machined, the upper segments of frames 72 and 74 are machined from plates while the lower segments are made from sheet metal.

UGB13131 - U7ST0M0 - UM51D2000000001





CONE/REAR FUSELAGE - VERTICAL STABILIZER ATTACHMENT FITTINGS

FUSELAGE D/O (3)

CONE/REAR FUSELAGE (continued)

THS ATTACHMENT FITTINGS

The fuselage area between Fr 73 and Fr 77 houses the horizontal stabilizer.
There is a large cut-out between Fr 73 and Fr 77, which is surrounded by machined beams. A system of diagonal struts is installed on the horizontal and vertical plane in the upper and lower areas of the cutout to increase the rigidity of this open section.
The machined frame 77 supports the tailplane hinge bearings and the lateral load fittings. They introduce horizontal stabilizer loads into the fuselage structure, via the central bracing structure and the upper and lower bracing structures.
Frame 77 also includes four lugs for the attachment of the tail cone unit.

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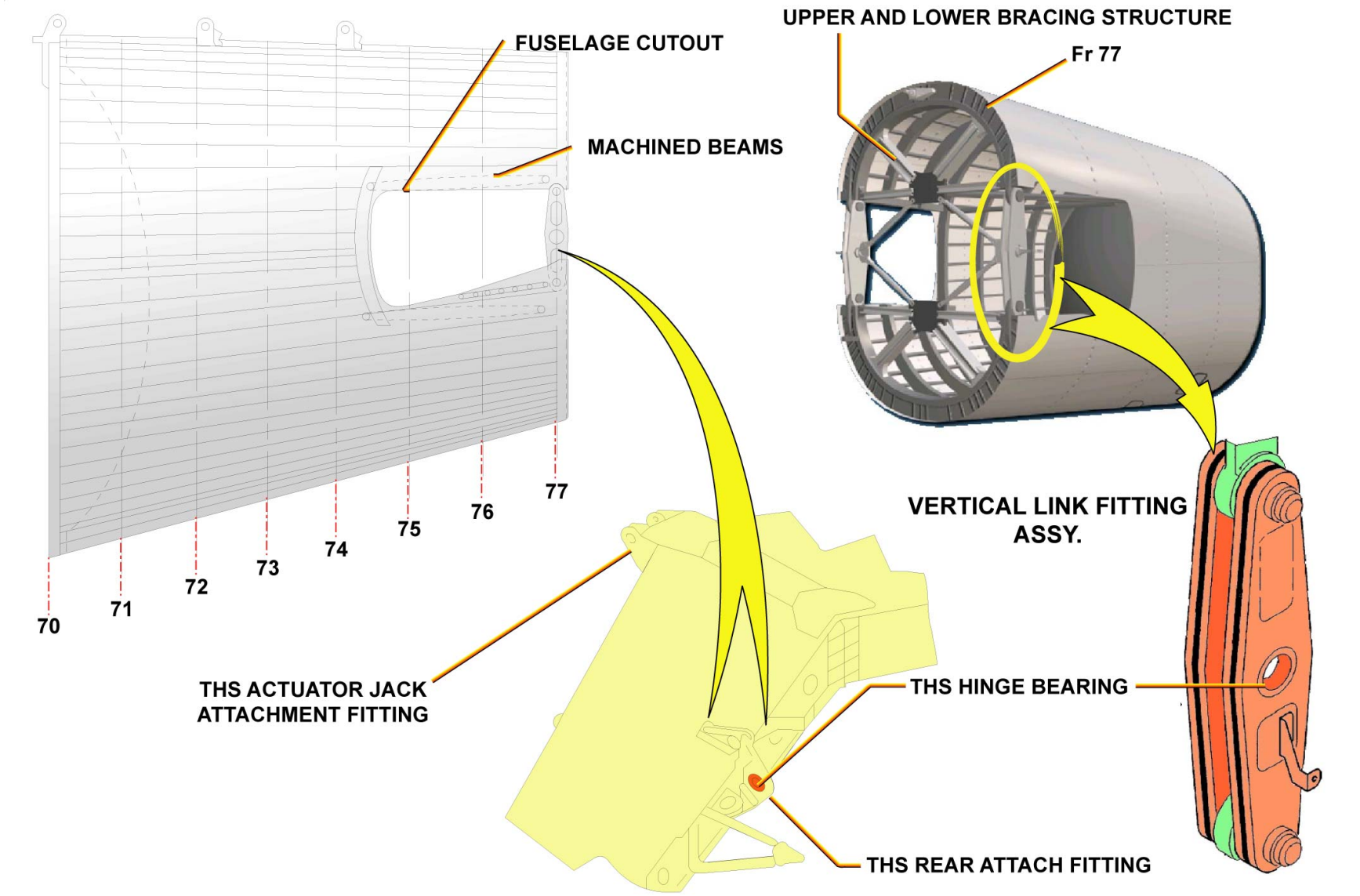

CONE/REAR FUSELAGE - THS ATTACHMENT FITTINGS

FUSELAGE D/O (3)

CONE/REAR FUSELAGE (continued)

TAIL CONE

The tail cone unit is located aft of Fr 77 and houses the APU. This section is connected to section 19 by means of four lugs and one spigot.
The inner skins and forward wall of the APU compartment are made from titanium alloy to create a fire containment compartment.

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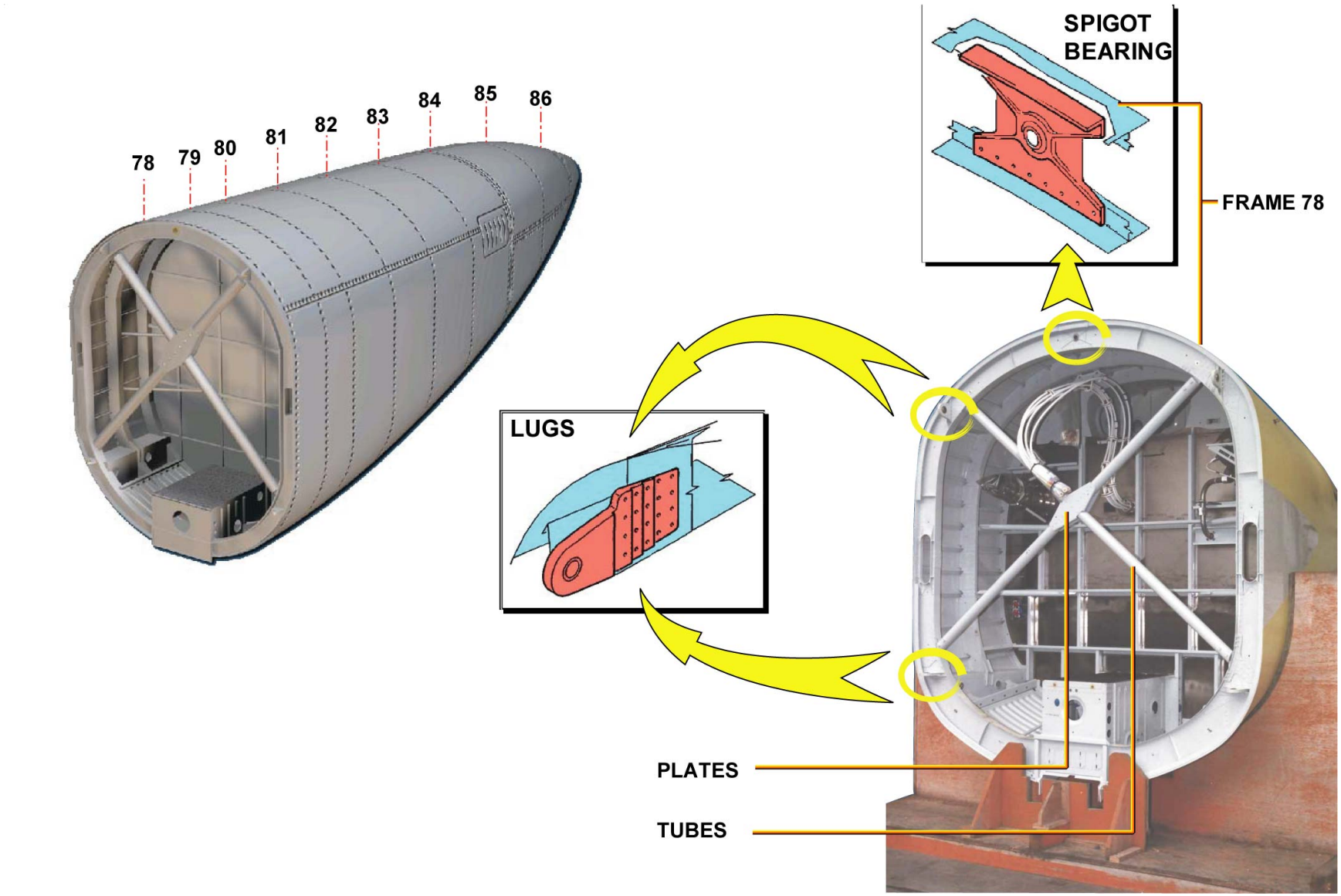

CONE/REAR FUSELAGE - TAIL CONE

PYLONS/NACELLES D/O (3)

GENERAL

The function of the engine pylons installed under each wing is:
- to support the engine,
- to transmit the engine thrust to the aircraft,
- to enable the routing and attachment of all the systems connected with the engine (electrical wiring, hydraulic, bleed air and fuel lines).

The nacelle gives the engine an aerodynamic shape and supports the thrust reverser system.
Information concerning structure of the nacelle can be found within the nacelle manufacturer documentation.

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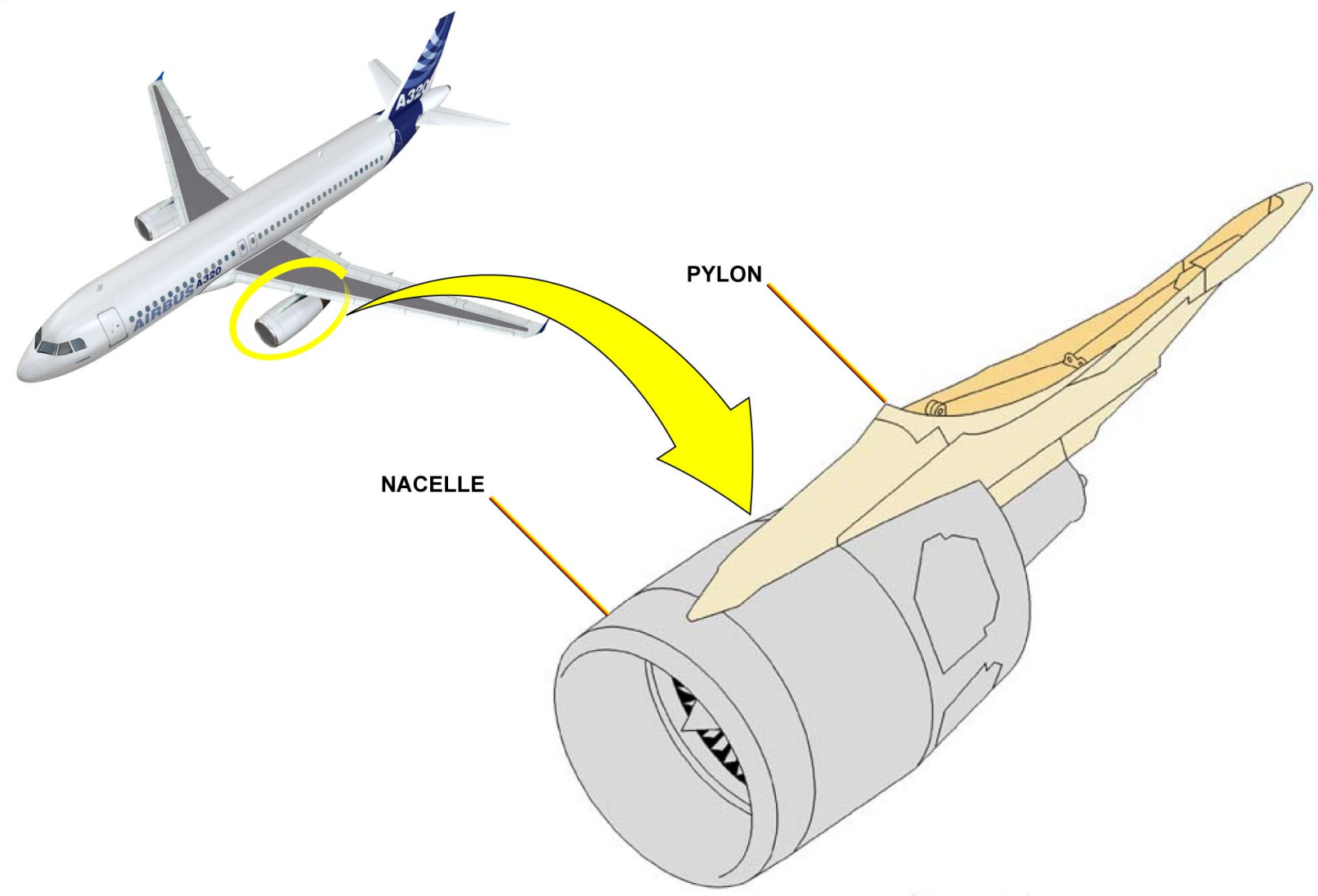

GENERAL

PYLONS/NACELLES D/O (3)

PYLONS - GENERAL ARRANGEMENT

The pylon has:
- a primary structure attached to the wing and supporting the engine,
- a secondary structure, essentially fairings, housing most of the systems.

The hinge fittings of the fan cowl doors are installed on the forward fairing (secondary structure).
The hinge fittings of thrust reverser doors are installed on the pylon box, and another hinge (tie bar) goes through the secondary structure.

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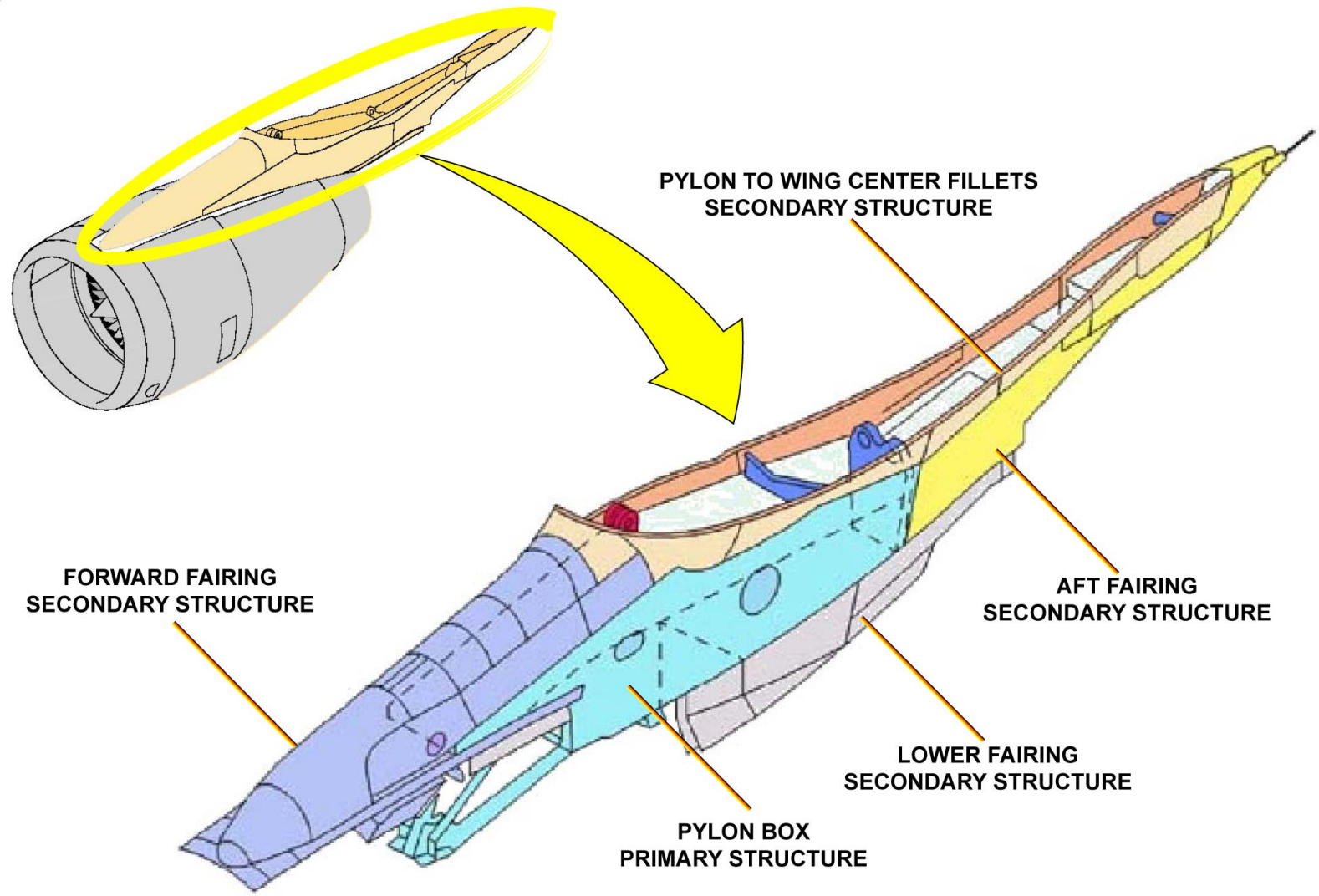

PYLONS - GENERAL ARRANGEMENT

PYLONS/NACELLES D/O (3)

PYLONS PRIMARY STRUCTURE - PYLON BOX

GENERAL ARRANGEMENT

The pylon box is the primary structure. It supports the engine by two points and is attached to the wing at three points.

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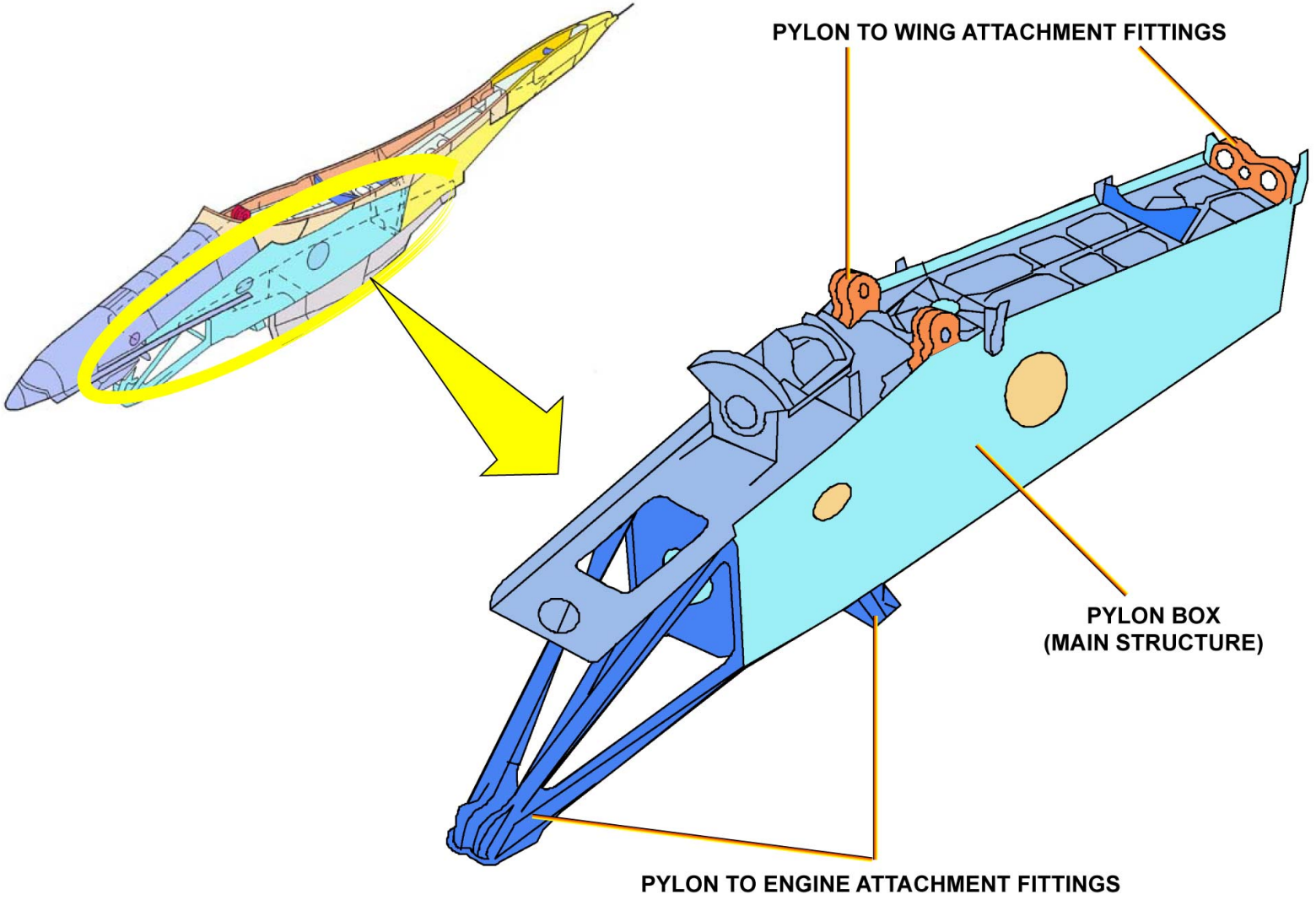

PYLONS PRIMARY STRUCTURE - PYLON BOX - GENERAL ARRANGEMENT

PYLONS/NACELLES D/O (3)

PYLONS PRIMARY STRUCTURE - PYLON BOX (continued)

MAIN ASSEMBLY

The pylon box is composed of ribs, two upper spars and one lower spar, and panels mainly made from steel and titanium alloys.

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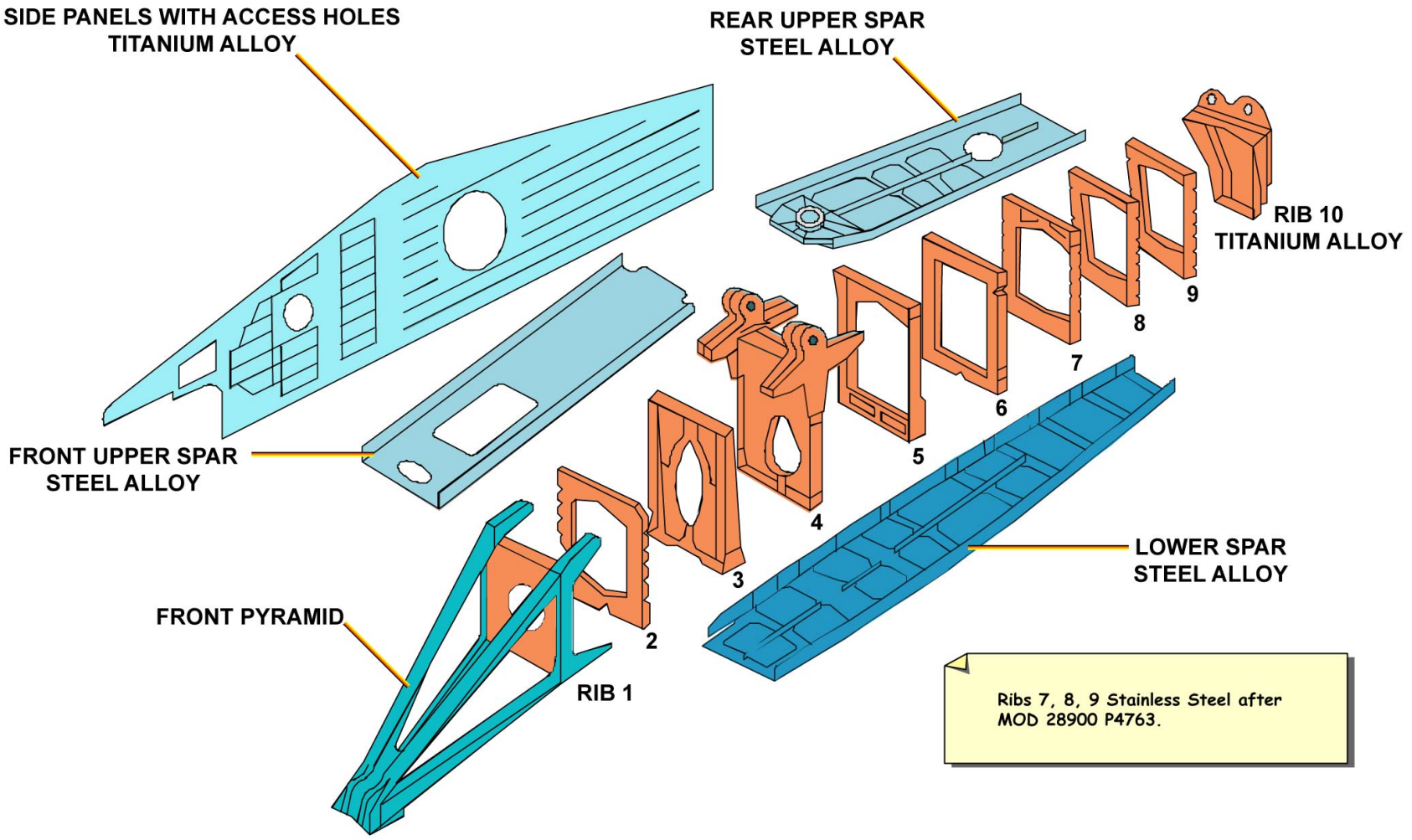

PYLONS PRIMARY STRUCTURE - PYLON BOX - MAIN ASSEMBLY

PYLONS/NACELLES D/O (3)

PYLONS PRIMARY STRUCTURE - PYLON BOX (continued)

PYLON TO WING ATTACHMENT

The forward pylon to wing attach fitting has a double lugged fork attachments connected to the wing fitting by means of four shackles. This fitting located at Rib 4 is made of titanium alloy and carries vertical loads.

The aft pylon to wing attach fitting has a single fail safe lug connected to the wing fitting by means of two shackles. This fitting located at Rib 10 is made of titanium alloy and carries vertical and side loads.

Immediately behind the forward attach fitting a spherical bearing transmits the thrust to a spigot bolted to the bottom wing skin panel.

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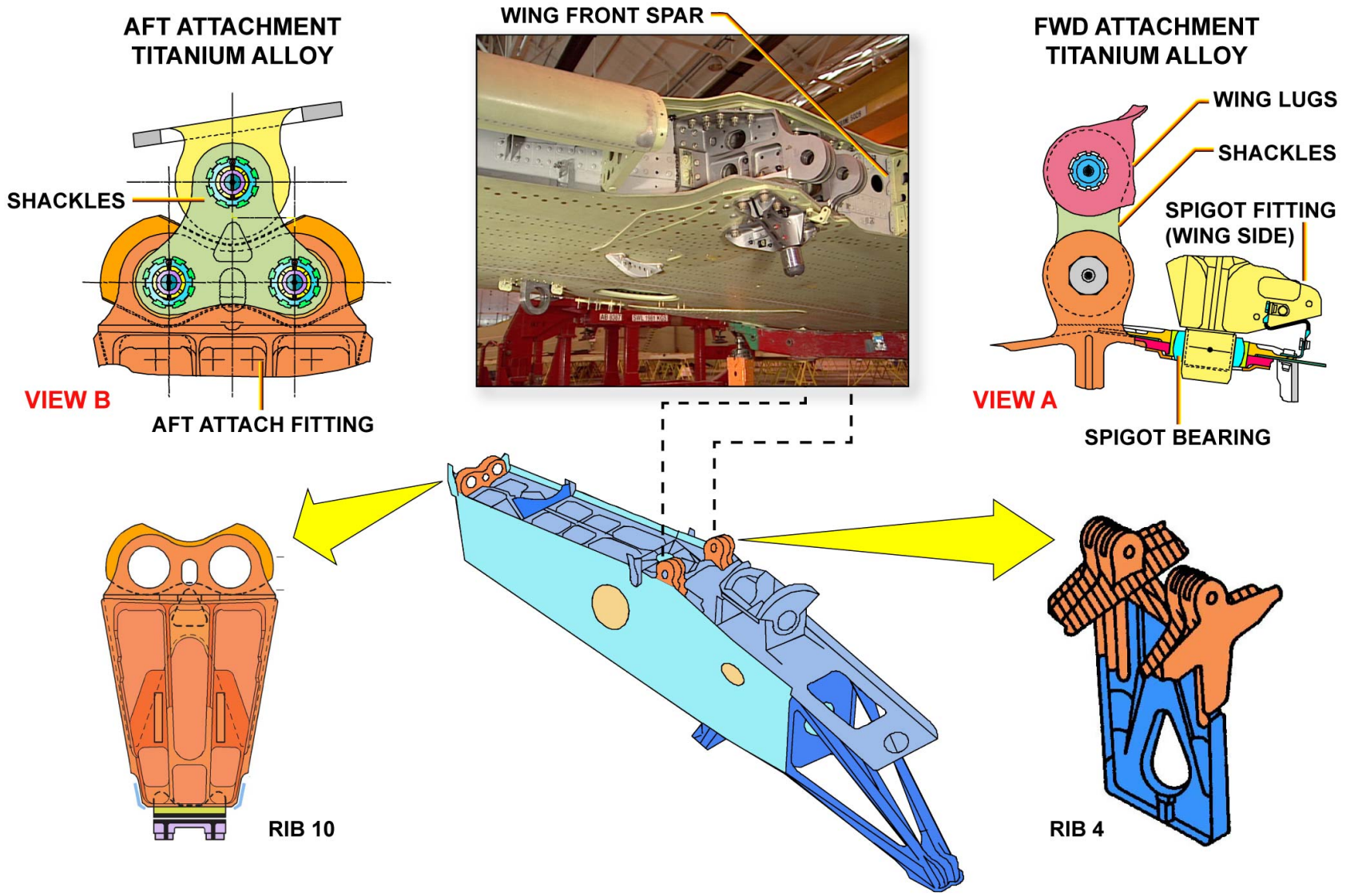

PYLONS PRIMARY STRUCTURE - PYLON BOX - PYLON TO WING ATTACHMENT

PYLONS/NACELLES D/O (3)

PYLONS PRIMARY STRUCTURE - PYLON BOX (continued)

PYLON TO ENGINE ATTACHMENT

At The forward engine to pylon attach fitting there is a pyramid attached to the rib and made of steel alloy.
This fitting transmits the engine thrust, side loads and vertical loads.
At The aft engine to pylon attach fitting there is an engine mount located at Rib 3 for CFM 56-5 engine configuration or at Rib 4 for IAE V2500 engine configuration. This fitting reacts to vertical loads, side loads and roll movement.

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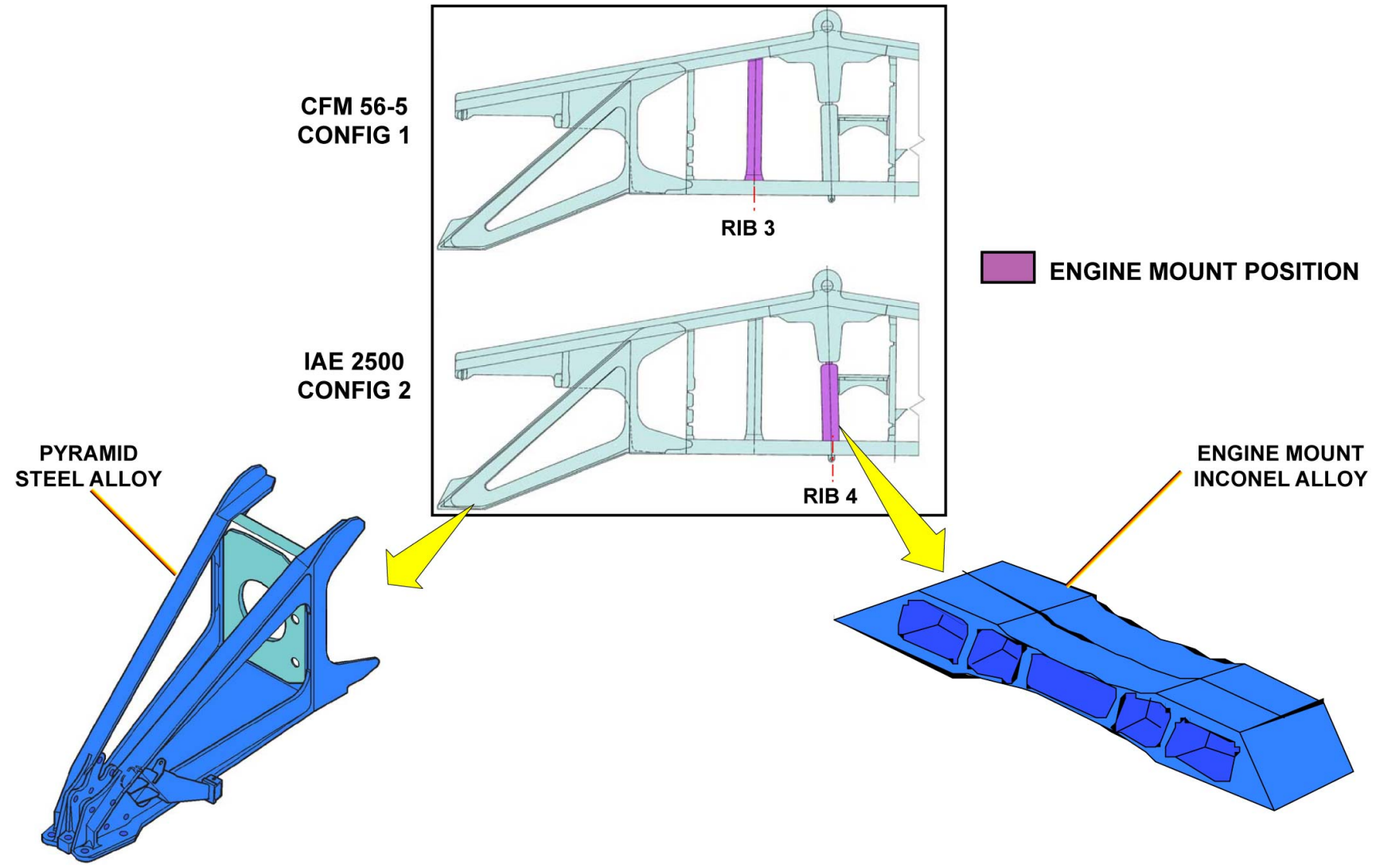

PYLONS PRIMARY STRUCTURE - PYLON BOX - PYLON TO ENGINE ATTACHMENT

PYLONS/NACELLES D/O (3)

PYLONS SECONDARY STRUCTURE

GENERAL ARRANGEMENT

The secondary structure is composed of:
- the forward fairing,
- the pylon to wing center fillets,
- the aft fairing,
- the lower fairing.

The forward fairing can be divided into two sections; the cantilever structure between Rib 01 and Rib 05, and the structure between Rib 05 and Rib 9.
The cantilever structure has an aerodynamic contour between the engine nose cowl and the pylon box structure. It routes all systems and the bleed air from the engine to the fuselage.
The structure between Rib 05 and Rib 9 has an aerodynamic contour between the cantilever structure and the wing leading edge, and enables the routing of various system lines and electrical wiring.
It includes in particular two pressure relief doors (made from titanium), which are designed to open in case of hot bleed air duct bursting.
The structure is mainly made of stainless steel alloy.
The pylon to wing center fillets give an aerodynamic contour between the pylon box and the wing bottom skin panel.
The pylon-to-wing center fillets are made of aluminum alloy ribs.
These ribs support the panels made of Carbon Fiber Reinforced Plastic (CFRP) and Aramid Fiber Reinforced Plastic (AFRP) sandwich construction.
The aft fairing is a removable secondary structure composed of two parts:
- a fixed fairing installed at the rear of the pylon box,
- a movable fairing underneath the flap.

The fixed fairing is attached by two points to the pylon box at Rib 10 and by one point to the wing box at the false rear spar.
The fixed fairing is an assembling of ribs and skin panels made of aluminum alloy, and includes a lower aft fairing made in inconel.
The movable fairing is hinged at Rib 14 and linked to the flap by a rod attached to the fairing by a serrated plate system.
The internal structure of the movable fairing is mainly made of aluminum alloy. The side panels are made from AFRP sandwich construction and the tail cone is made from AFRP or CFRP monolithic construction.
A fairing installed under the pylon box (lower fairing) makes sure that there is a continuity of the aerodynamic profile between the pylon box and the engine nozzle.
Its function is:
- to supply thermal protection to the pylon from the engine exhaust gases,
- to smooth out protrusions with minimal aerodynamic drag changes.

The lower fairing structure is mainly made of aluminum alloy, stainless steel and inconel alloys.

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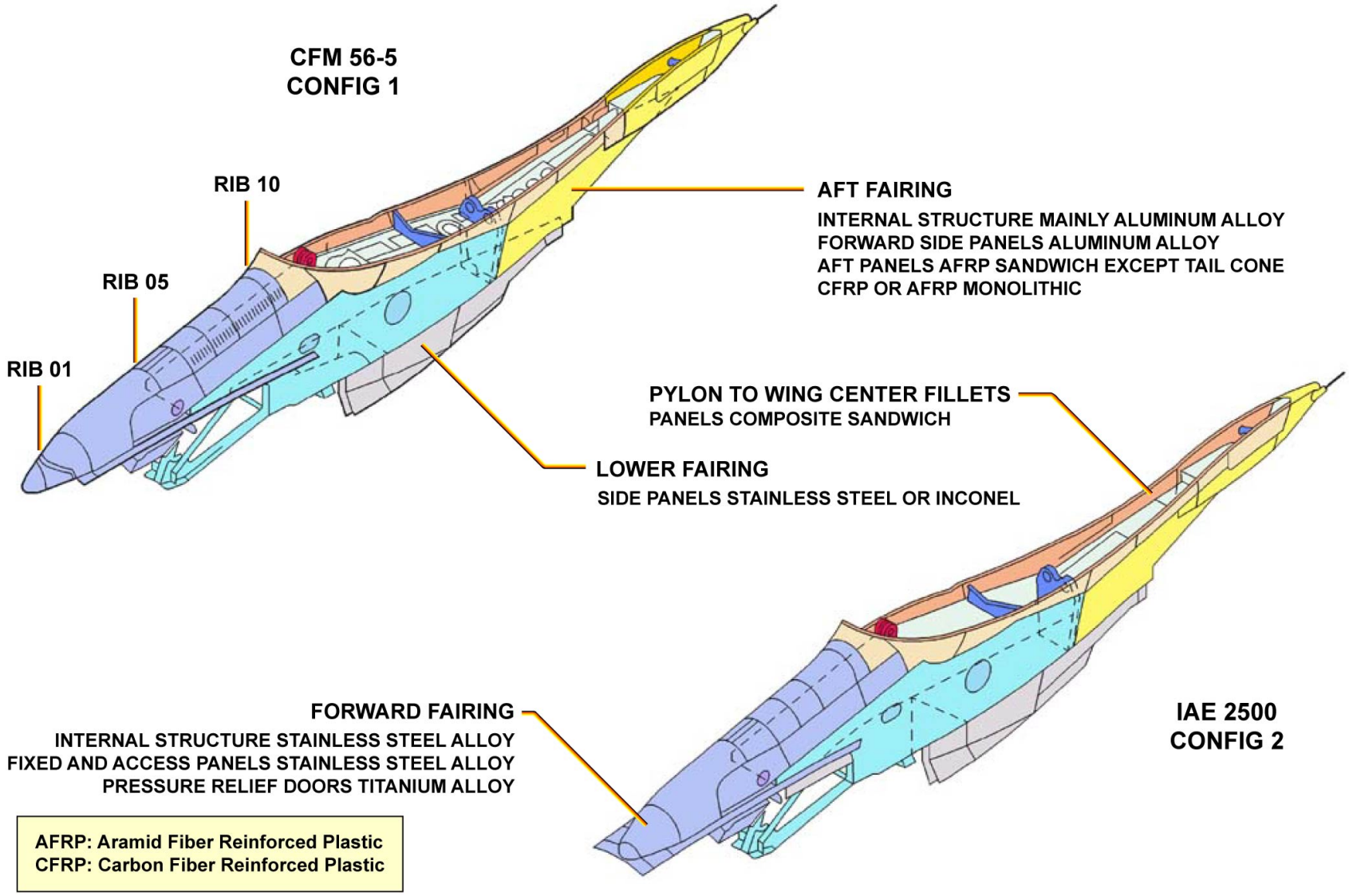

PYLONS SECONDARY STRUCTURE - GENERAL ARRANGEMENT

UGB13131 - U7ST0M0 - UM51D3000000001

STABILIZERS D/O (3)

STABILIZERS - GENERAL ARRANGEMENT

Stabilizers are composed of: Trimmable Horizontal Stabilizer (THS), elevators, the vertical stabilizer and rudder.

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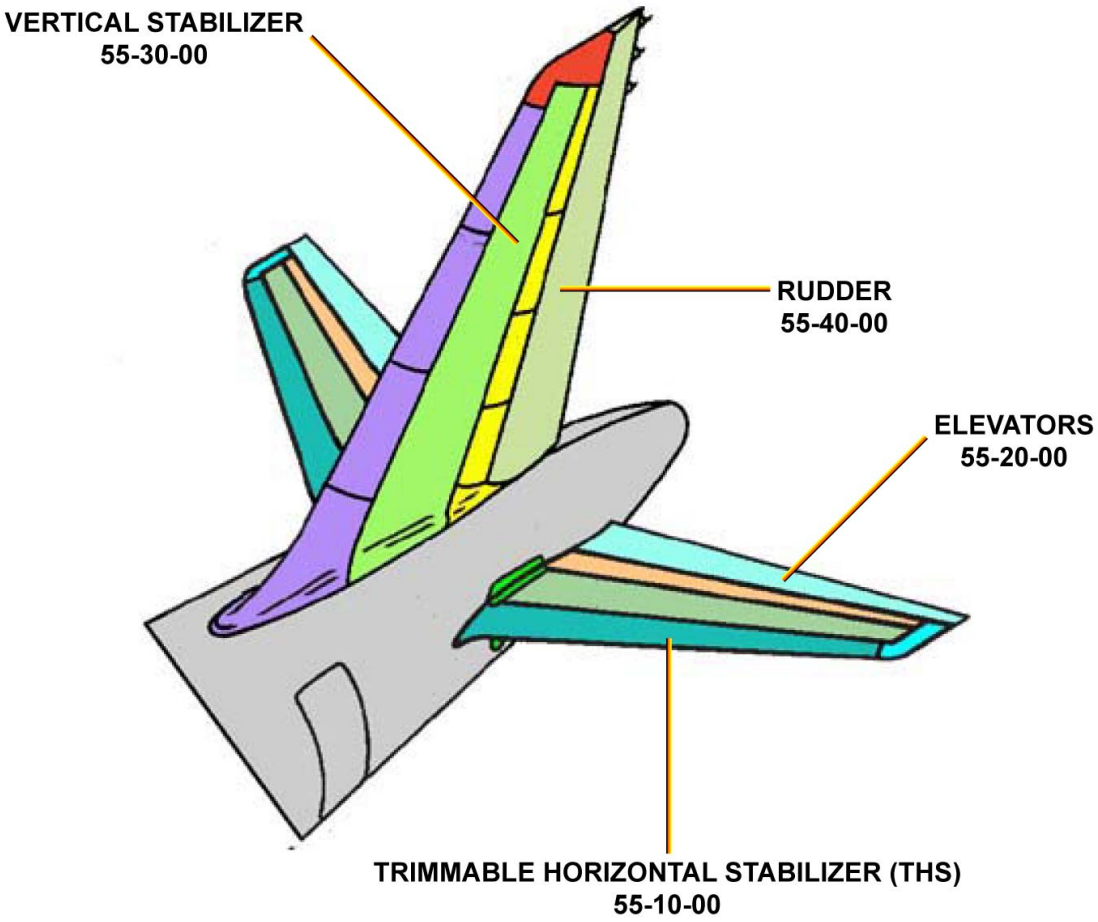


STABILIZERS - GENERAL ARRANGEMENT

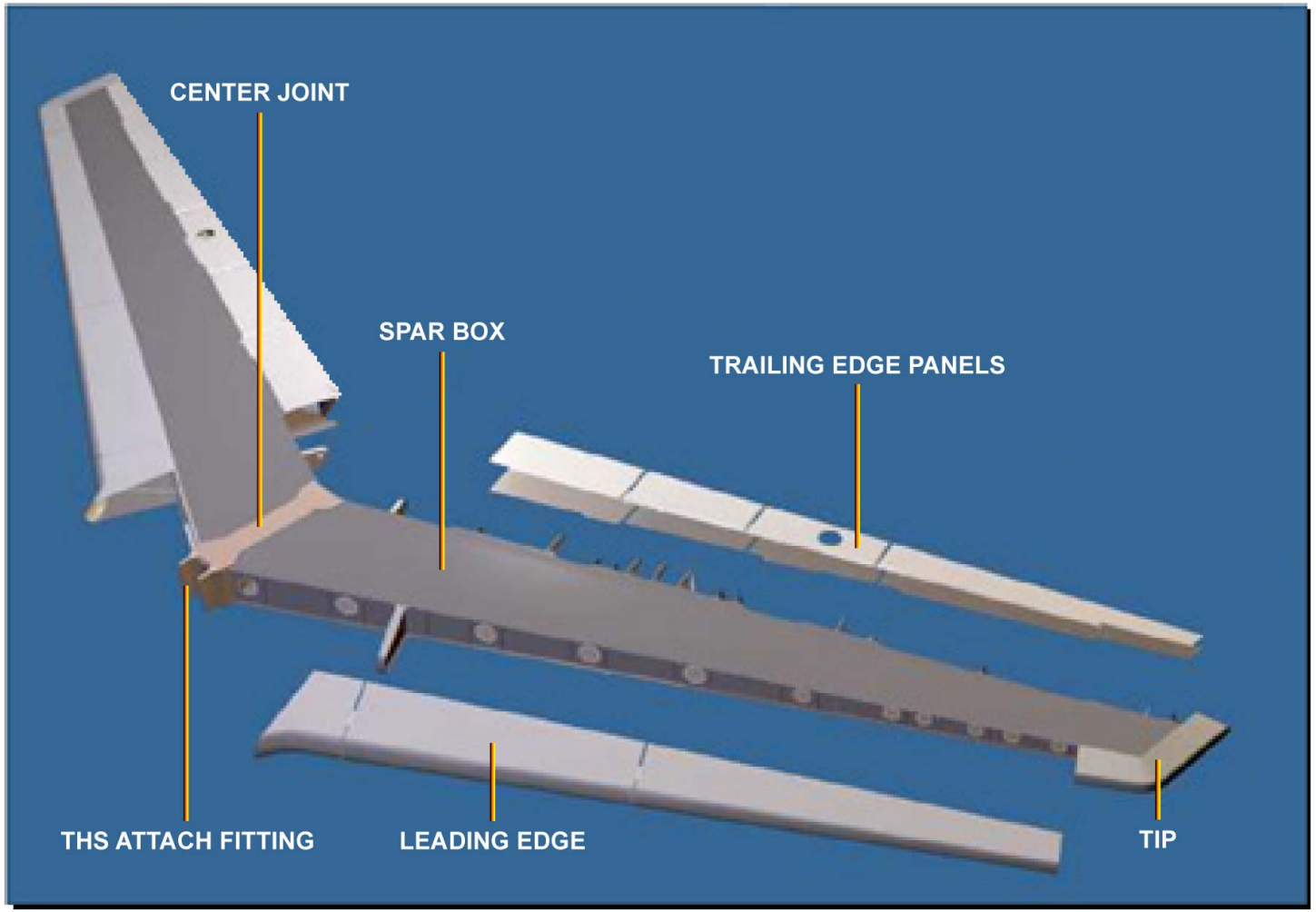
STABILIZERS D/O (3)

TRIMMABLE HORIZONTAL STABILIZER (THS)

GENERAL ARRANGEMENT

The THS main structure has:
- the spar boxes (Center, Left Hand (LH) and Right Hand (RH) sides),
- the leading edge,
- the trailing edge,
- the attachment fittings.

The spar boxes are the primary structure of the horizontal stabilizer and support all the other components.



TRIMMABLE HORIZONTAL STABILIZER (THS) - GENERAL ARRANGEMENT

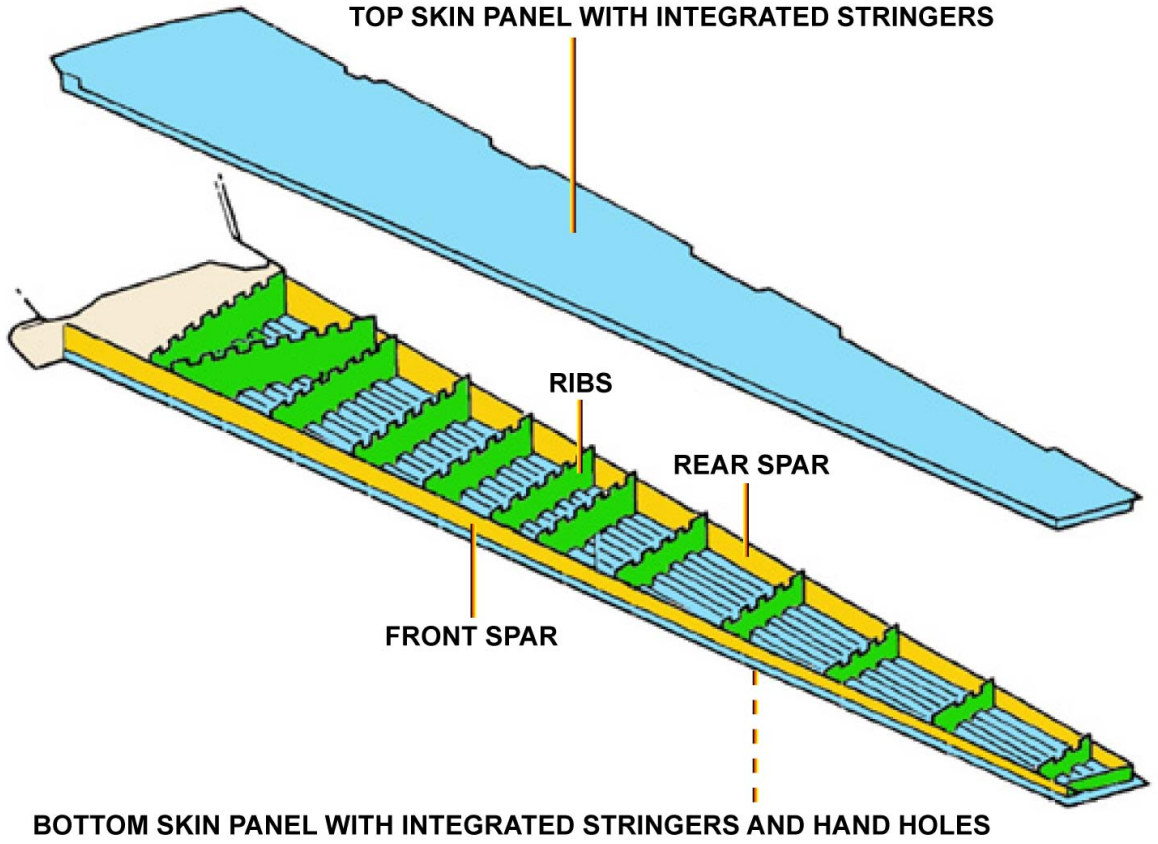
STABILIZERS D/O (3)

TRIMMABLE HORIZONTAL STABILIZER (THS) (continued)

SPAR BOXES

The complete spar box assembly has the LH and RH boxes and the center joint.
Each spar box includes top and bottom skin panels, a front spar, a rear spar and thirteen ribs (from Rib 2 thru Rib 14).
The LH and RH spar boxes are laminated in Carbon Fiber Reinforced Plastic (CFRP).
The center joint is made from titanium and connects the LH and RH spar boxes to make one single unit.

CFRP ASSEMBLY


TOP SKIN PANEL WITH INTEGRATED STRINGERS
RIBS
REAR SPAR
FRONT SPAR
BOTTOM SKIN PANEL WITH INTEGRATED STRINGERS AND HAND HOLES

CFRP : Carbon Fiber Reinforced Plastic

TRIMMABLE HORIZONTAL STABILIZER (THS) - SPAR BOXES

STABILIZERS D/O (3)

TRIMMABLE HORIZONTAL STABILIZER (THS) (continued)

MAIN SUPPORT FITTINGS

A hydromechanical actuator enables the adjustment of the angle of incidence of the THS. The actuator is connected to a dual fitting (front spar fitting) at the forward end of Rib 1, by means of ball nut and a jack crew.

The THS is attached to the cone rear fuselage structure at two pivot points (rear support fittings). They are installed on each side of the THS at Rib 3. All fittings are made of CFRP.

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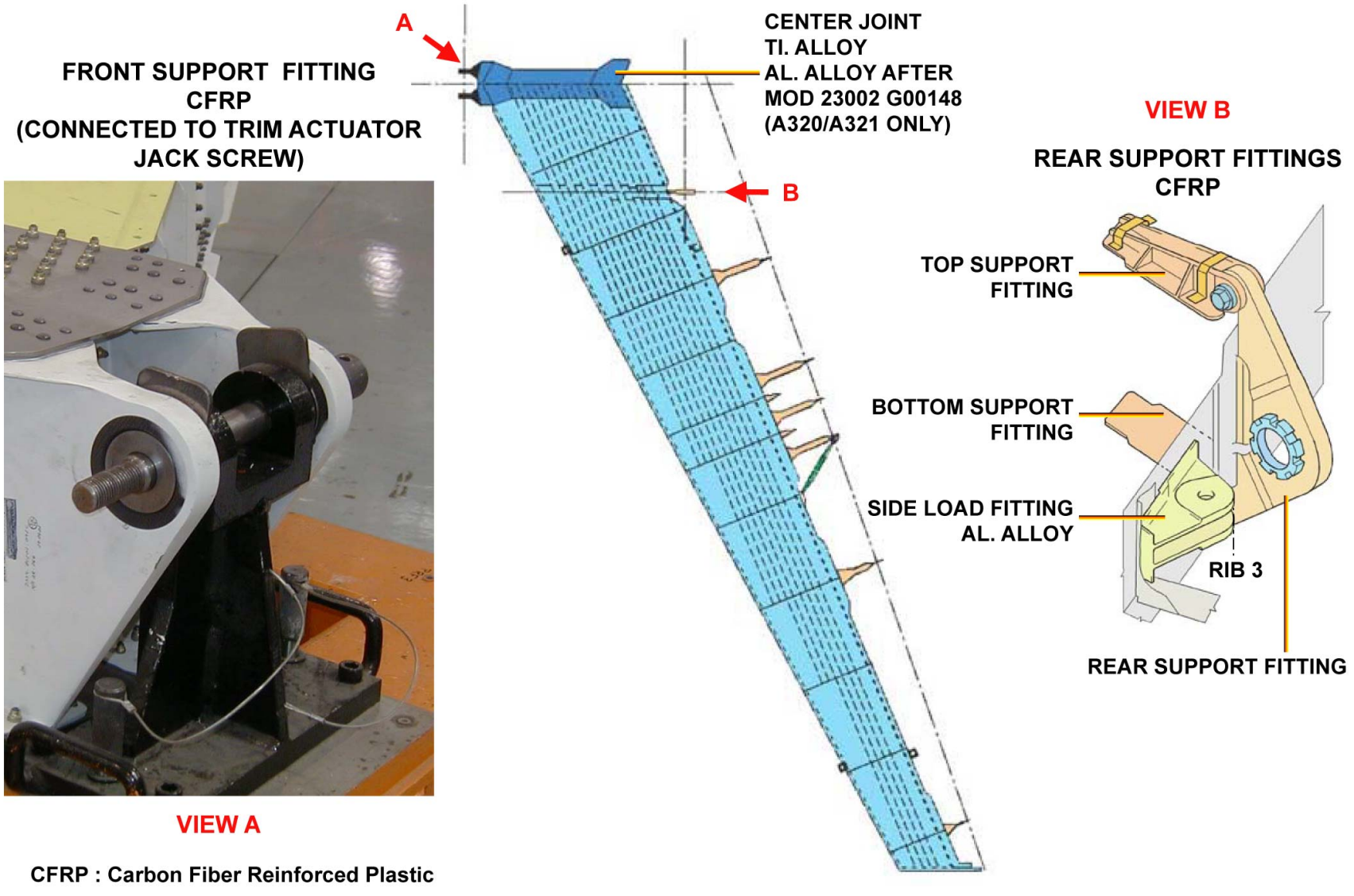

TRIMMABLE HORIZONTAL STABILIZER (THS) - MAIN SUPPORT FITTINGS

STABILIZERS D/O (3)

TRIMMABLE HORIZONTAL STABILIZER (THS) (continued)

ELEVATOR ATTACHMENT FITTINGS

Each rear spar bears six elevator hinge arms and two fittings for the attachment of the elevator servocontrol actuators.

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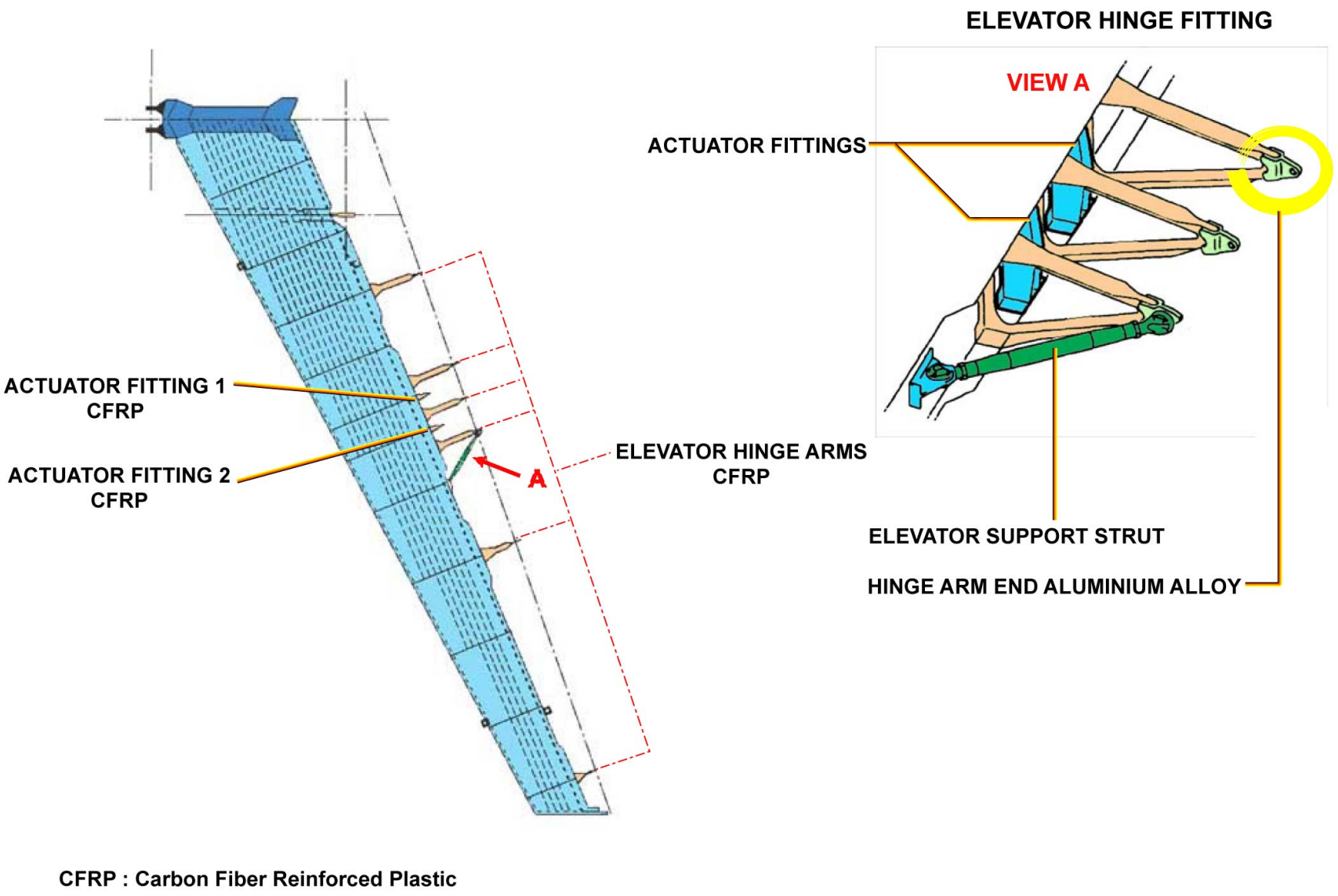


TRIMMABLE HORIZONTAL STABILIZER (THS) - ELEVATOR ATTACHMENT FITTINGS

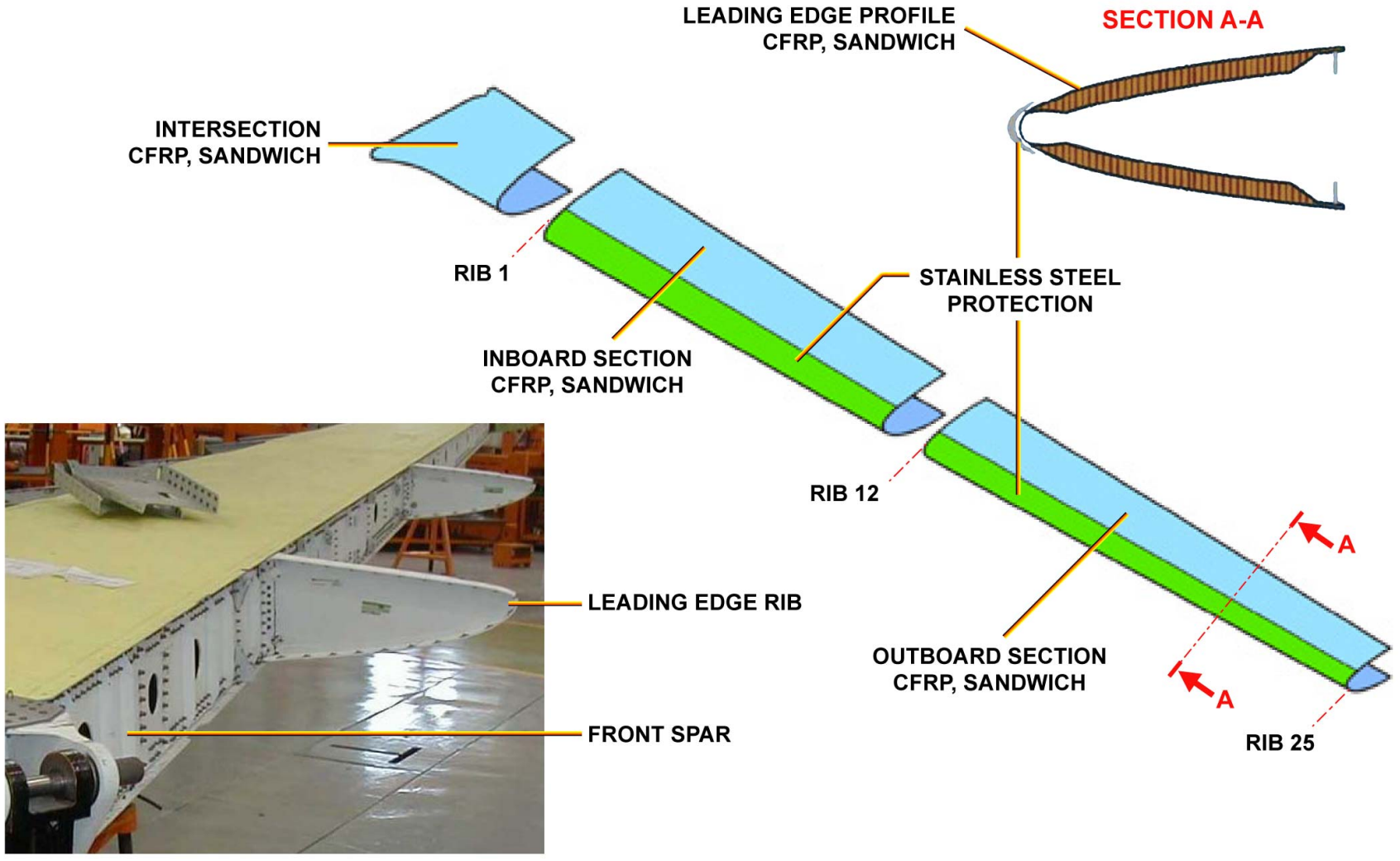
STABILIZERS D/O (3)

TRIMMABLE HORIZONTAL STABILIZER (THS) (continued)

LEADING EDGE

The leading edge has an aerodynamic shape at the front of the THS.
On each side of the THS centerline, the THS leading edge includes:
- three leading edge primary ribs,
- one inboard leading edge section,
- one outboard leading edge section and,
- one leading edge intersection.

All components are laminated in CFRP.
The front part of the inboard and outboard leading edges stretch from Rib 1 to Rib 25 of the leading edge structure. Each section has a stainless steel protection, bonded to the leading edge.
The leading edge intersection is attached to Rib 1 of the leading edge substructure and to the spar box. A rubber strip is attached to the intersection. It seals the gap between the fuselage skin and the leading edge intersection.



CFRP : Carbon Fiber Reinforced Plastic

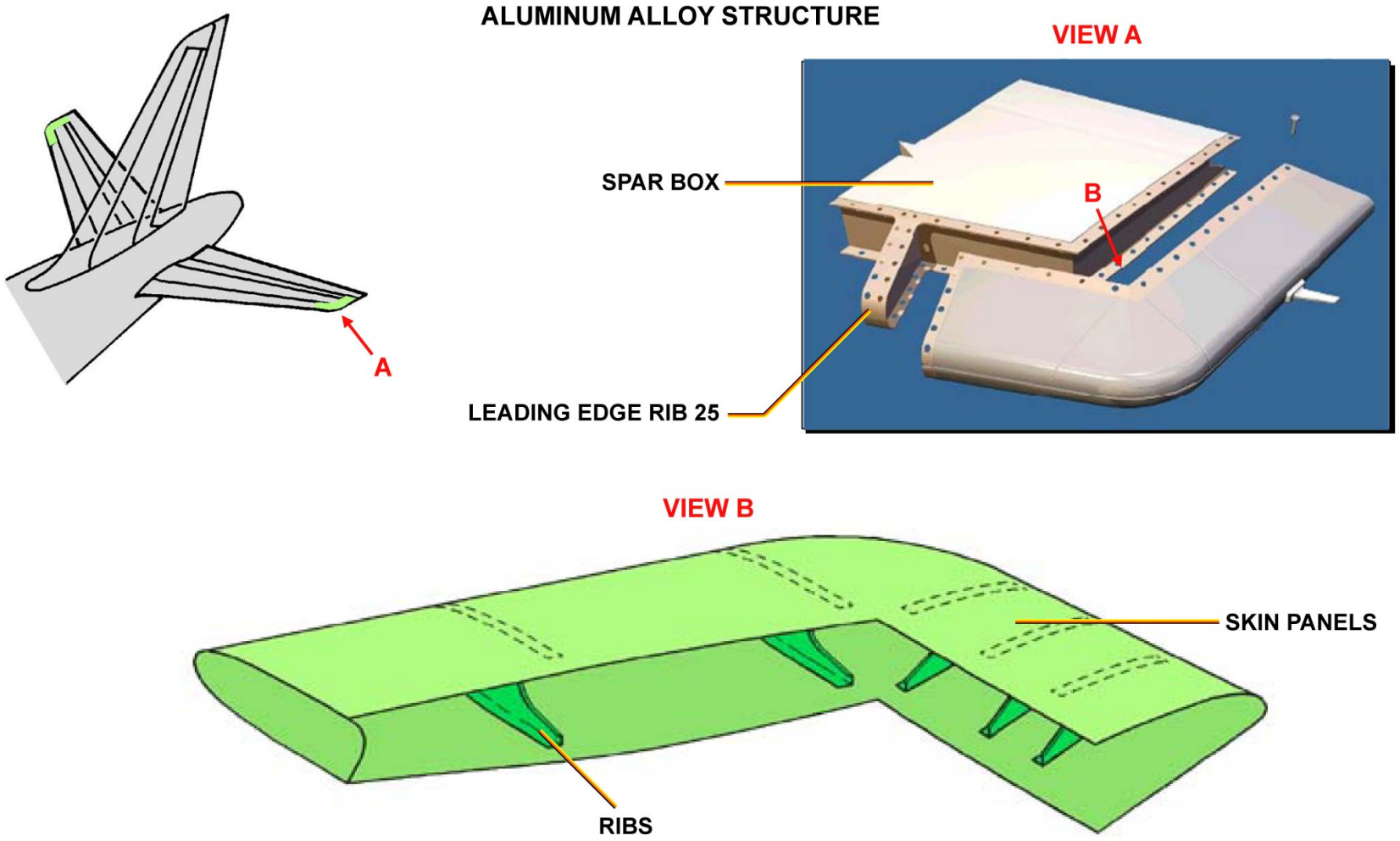
TRIMMABLE HORIZONTAL STABILIZER (THS) - LEADING EDGE

STABILIZERS D/O (3)

TRIMMABLE HORIZONTAL STABILIZER (THS) (continued)

TIP

The tips of the THS are the LH and RH outer fairings. The tips are made of aluminum alloy and include rib and skin panels. The tips are attached to the leading edge rib 25 and to the upper and lower shells of the spar box.



TRIMMABLE HORIZONTAL STABILIZER (THS) - TIP

STABILIZERS D/O (3)

TRIMMABLE HORIZONTAL STABILIZER (THS) (continued)

TRAILING EDGE

The trailing edge shapes an aerodynamic surface between the THS spar box and the elevator.

On each side of the THS centerline, the trailing edge panels are supported by nine intermediate ribs, and by six hinge elevator arm supports.

The access panels are laminated in CFRP bonded to a honeycomb core.

On each side there are four panel assemblies on the top surface and four access panels on the bottom surface. A rubber seal is installed between the panel assemblies and the access panels along the trailing edges to prevent dirtiness.

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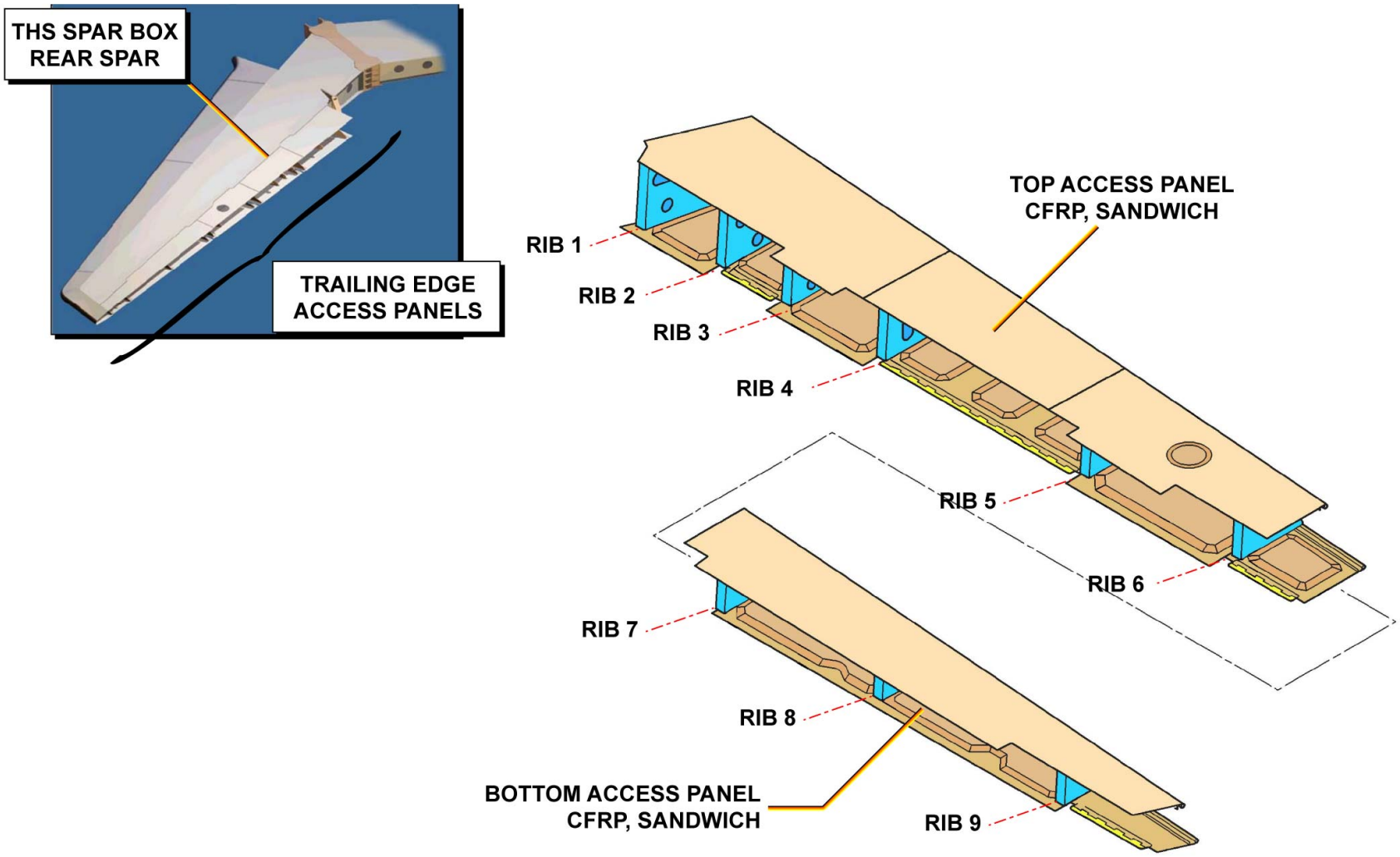


CFRP : Carbon Fiber Reinforced Plastic

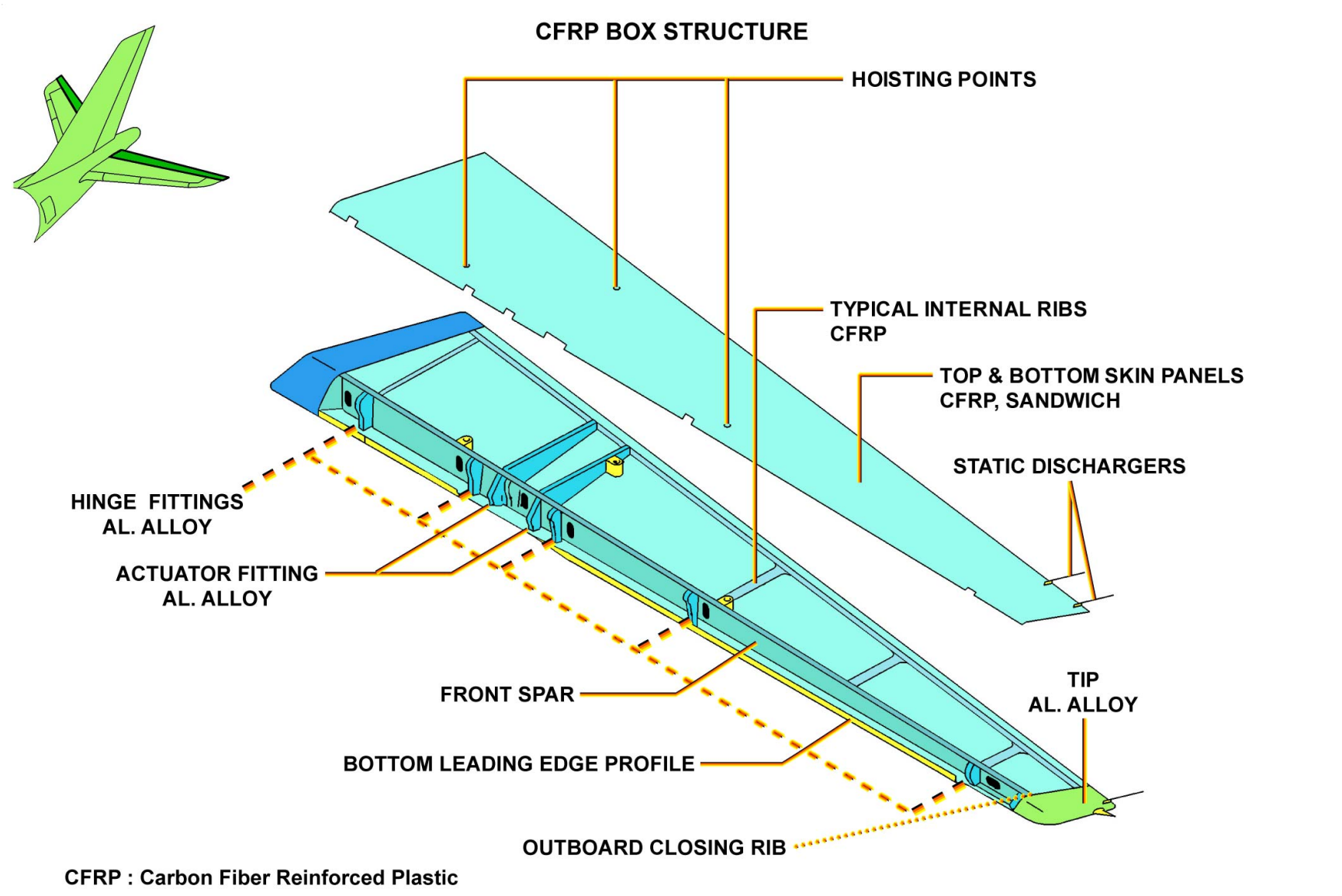
TRIMMABLE HORIZONTAL STABILIZER (THS) - TRAILING EDGE

STABILIZERS D/O (3)

ELEVATORS - STRUCTURE LAYOUT

The structure of each elevator includes:
- a front spar,
- top and bottom skin panels,
- four ribs.

All components are laminated in CFRP; the top and bottom panels are made in sandwich construction.
The outboard closing rib and the tip are made from aluminum alloy, like the actuator and hinge attachment fittings.
Rivets attach an aluminum profile to the trailing edge to act as lightning strike protection.
Six hinge fittings attach each elevator to the spar box of the THS. Two fittings attach the servo control units. You can remove the tips and the inboard end caps.
Each elevator has three hoisting points and four static dischargers.



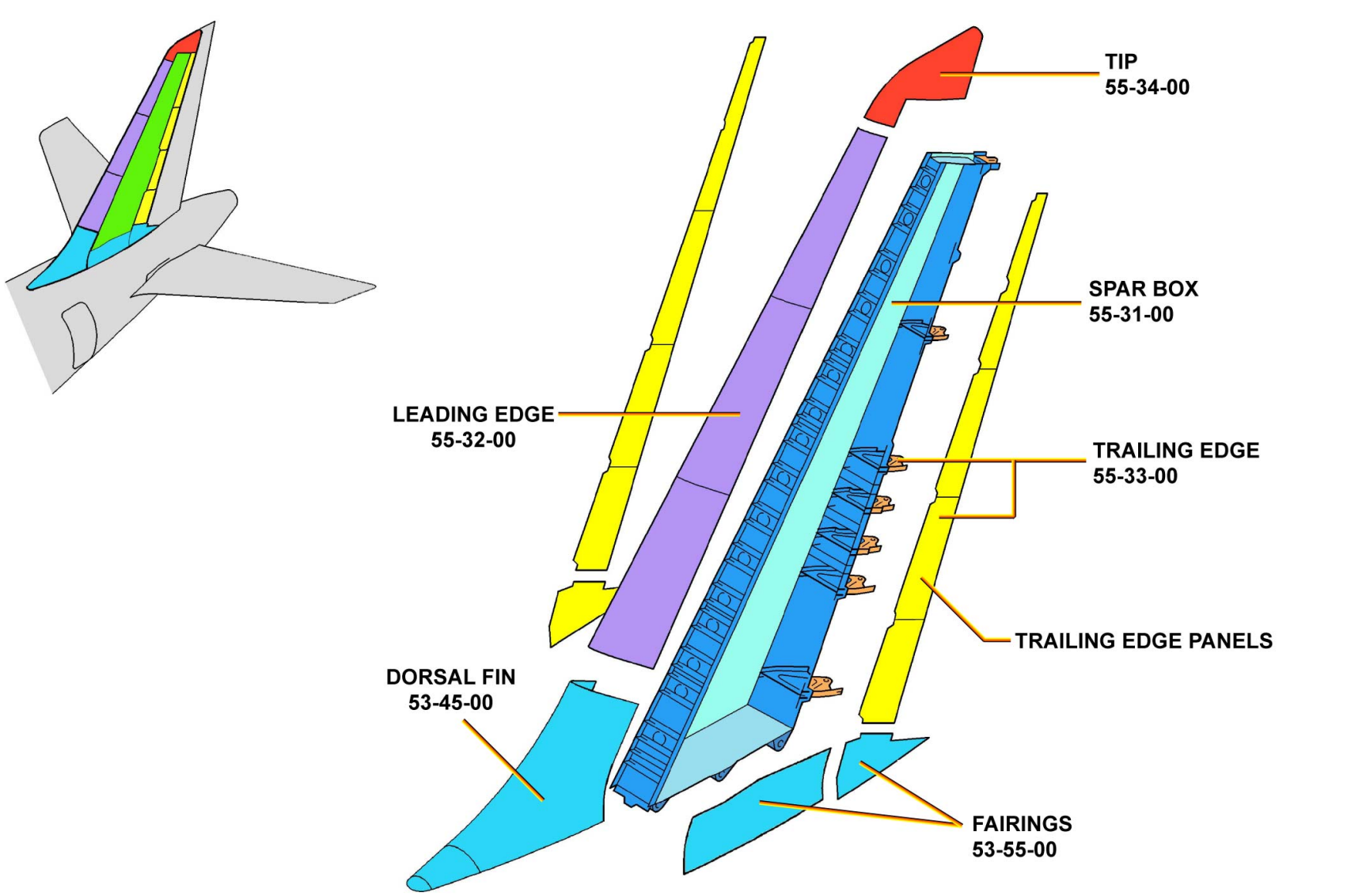
ELEVATORS - STRUCTURE LAYOUT

STABILIZERS D/O (3)

VERTICAL STABILIZER

GENERAL ARRANGEMENT

The vertical stabilizer is attached to the top of the rear fuselage. It supports the rudder, which is operated by three servo control units.
The High Frequency (HF) antenna and the Very high frequency Omnibearing Range (VOR) antenna are also attached to it.
The main components of the vertical stabilizer are:
- the spar box,
- the leading edge,
- the trailing edge,
- the tip,
- the attach fittings.



VERTICAL STABILIZER - GENERAL ARRANGEMENT

STABILIZERS D/O (3)

VERTICAL STABILIZER (continued)

SPAR BOX - STRUCTURE LAYOUT

The spar box is the primary structural component of the vertical stabilizer.
All the other components of the vertical stabilizer are attached to it.
The spar box has a front, a center and a rear spar, ribs and two side panels with co-bonded stringers, all laminated in CFRP.
Three pairs of main attach fittings made of CFRP attach the spar box to the fuselage.

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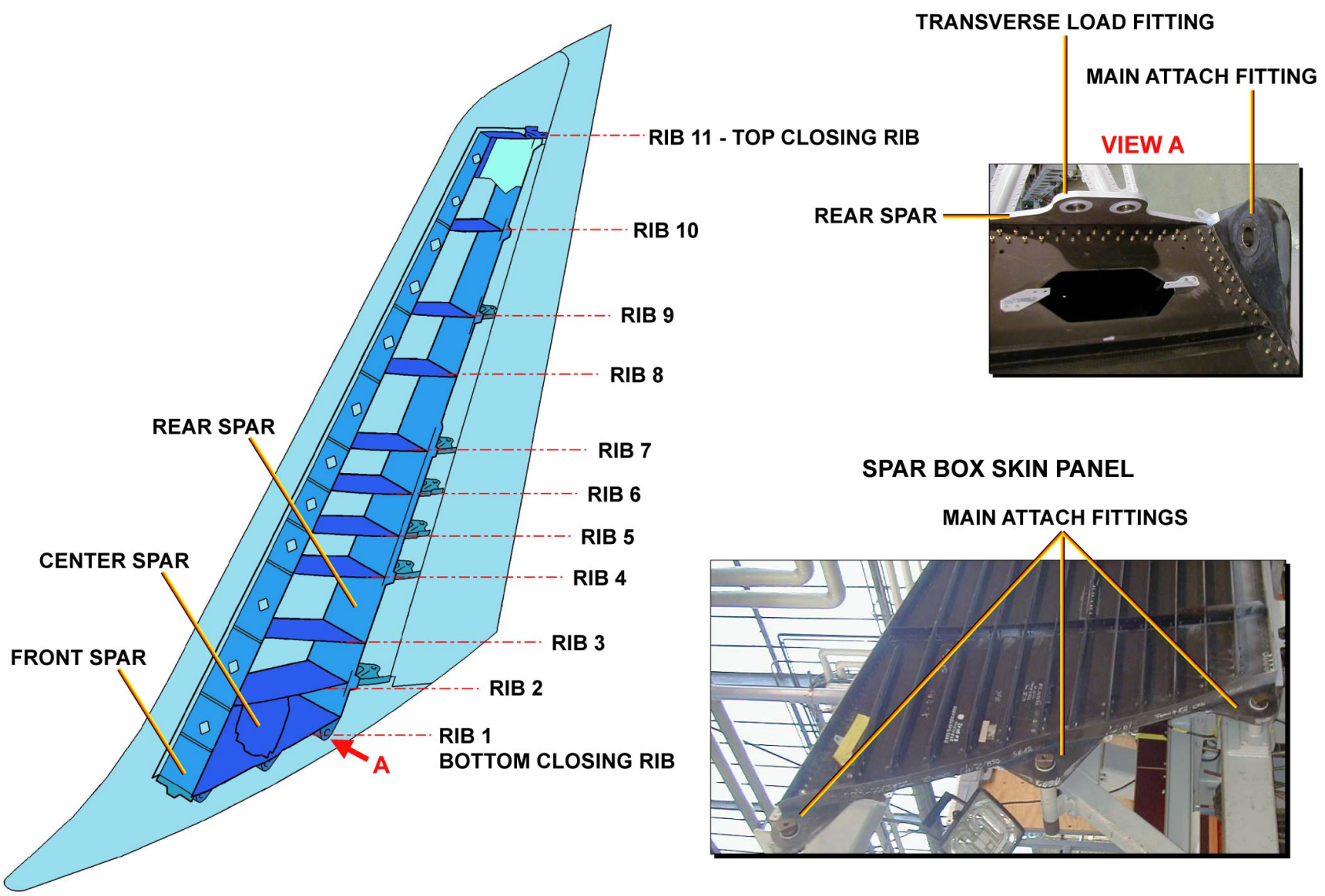

VERTICAL STABILIZER - SPAR BOX - STRUCTURE LAYOUT

STABILIZERS D/O (3)

VERTICAL STABILIZER (continued)

SPAR BOX - STRUCTURE LAYOUT (CONT'D)

The seven rudder hinge arms and the three actuator hinge fittings are made from aluminum alloy and are attached to the spar box rear spar.

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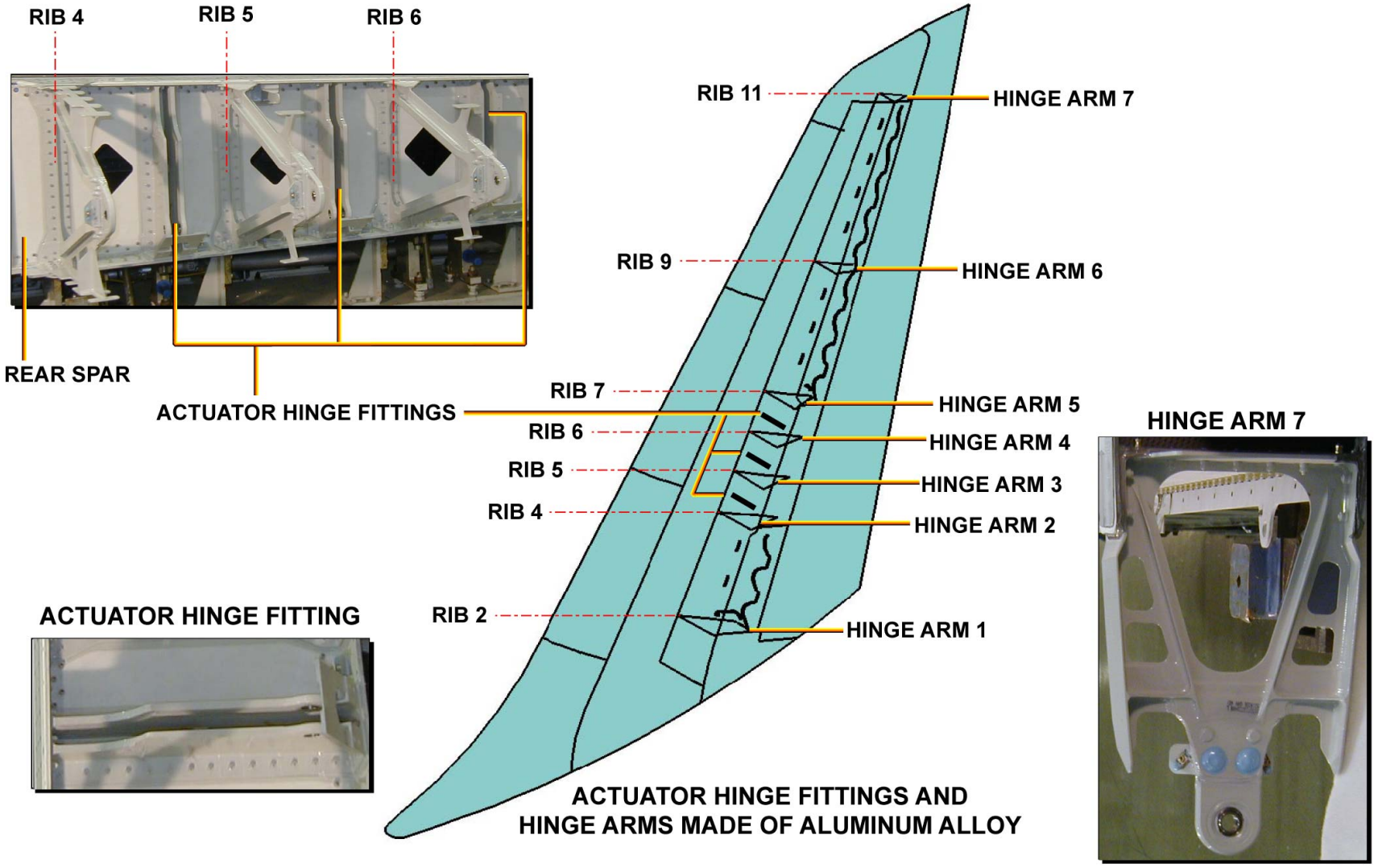

VERTICAL STABILIZER - SPAR BOX - STRUCTURE LAYOUT (CONT'D)

STABILIZERS D/O (3)

VERTICAL STABILIZER (continued)

LEADING EDGE

The vertical stabilizer leading edge has three removable sections. They are attached to the forward edge of the spar box side panels and to the leading edge ribs. The lower section gives access to the HF antenna (see ATA 53 fuselage description for the lower section).
The three sections give an aerodynamic shape to the front of the vertical stabilizer.
The three sections are laminated in Glass Fiber Reinforced Plastic (GFRP) bonded to a honeycomb core. A stainless steel cover can be bonded to the most forward part of the leading edge to prevent erosion damage.

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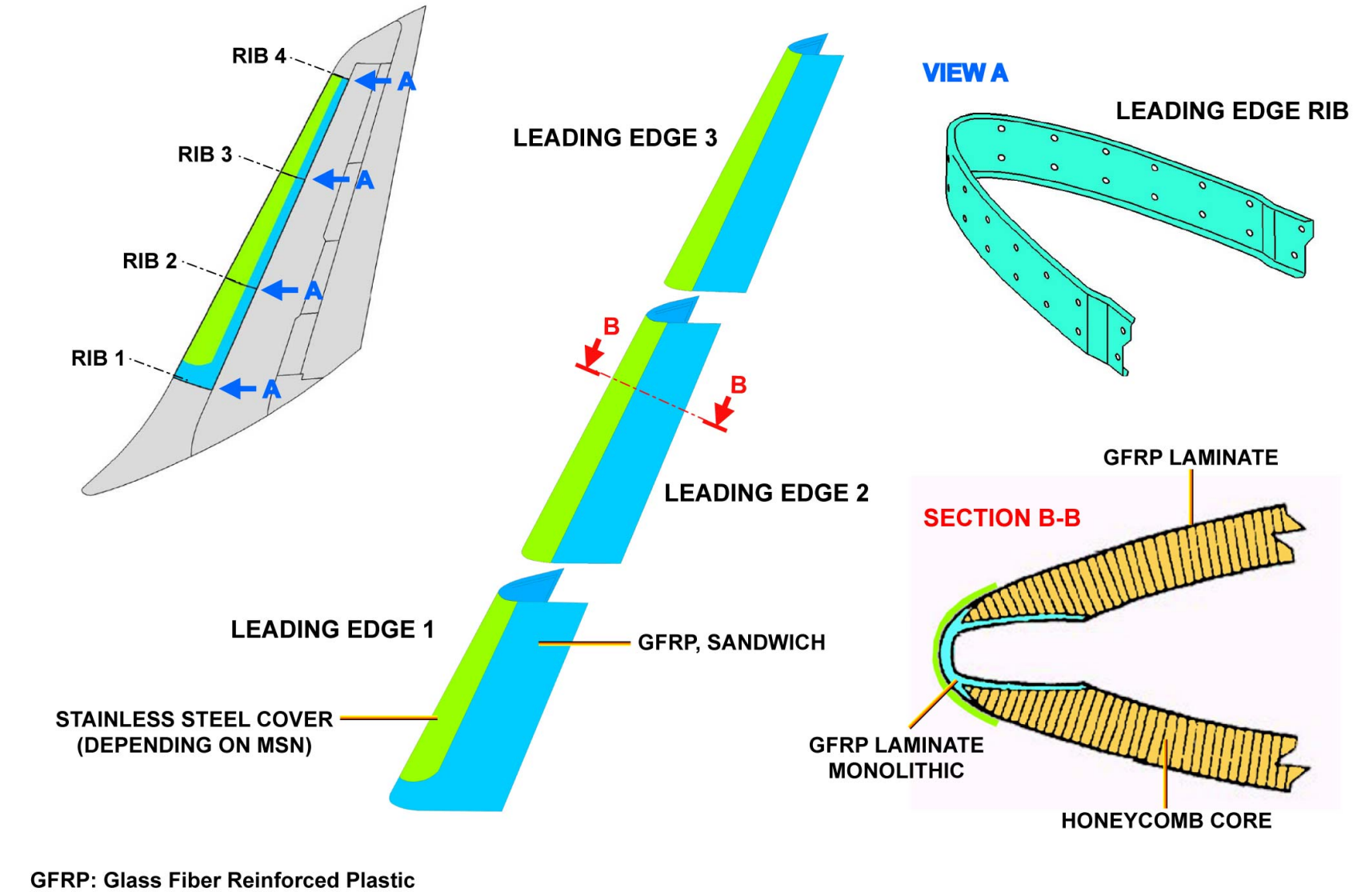


VERTICAL STABILIZER - LEADING EDGE

STABILIZERS D/O (3)

VERTICAL STABILIZER (continued)

TIP - STRUCTURE LAYOUT

The vertical stabilizer tip is laminated in GFRP bonded to a honeycomb core. It is attached to the leading edge end rib and the stabilizer spar box. An aluminum lightning strike protection strap is bonded along the top of the tip.

UGB13131 - U7ST0M0 - UM51D4000000001

GFRP: Glass Fiber Reinforced Plastic

VERTICAL STABILIZER - TIP - STRUCTURE LAYOUT

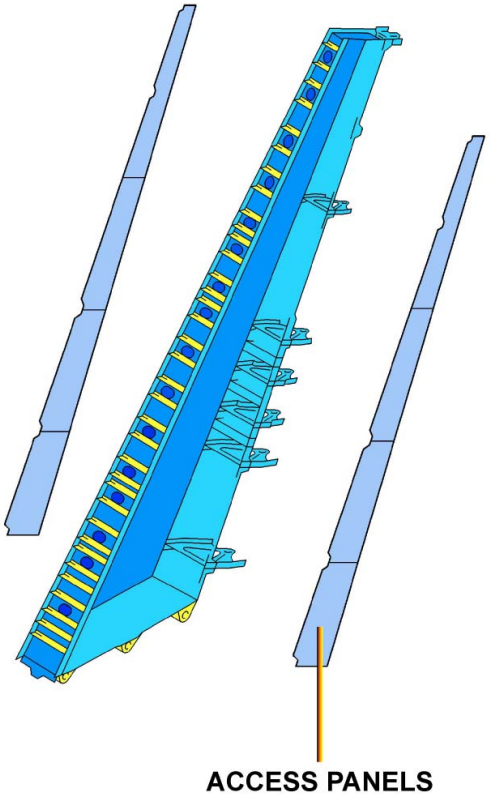
STABILIZERS D/O (3)

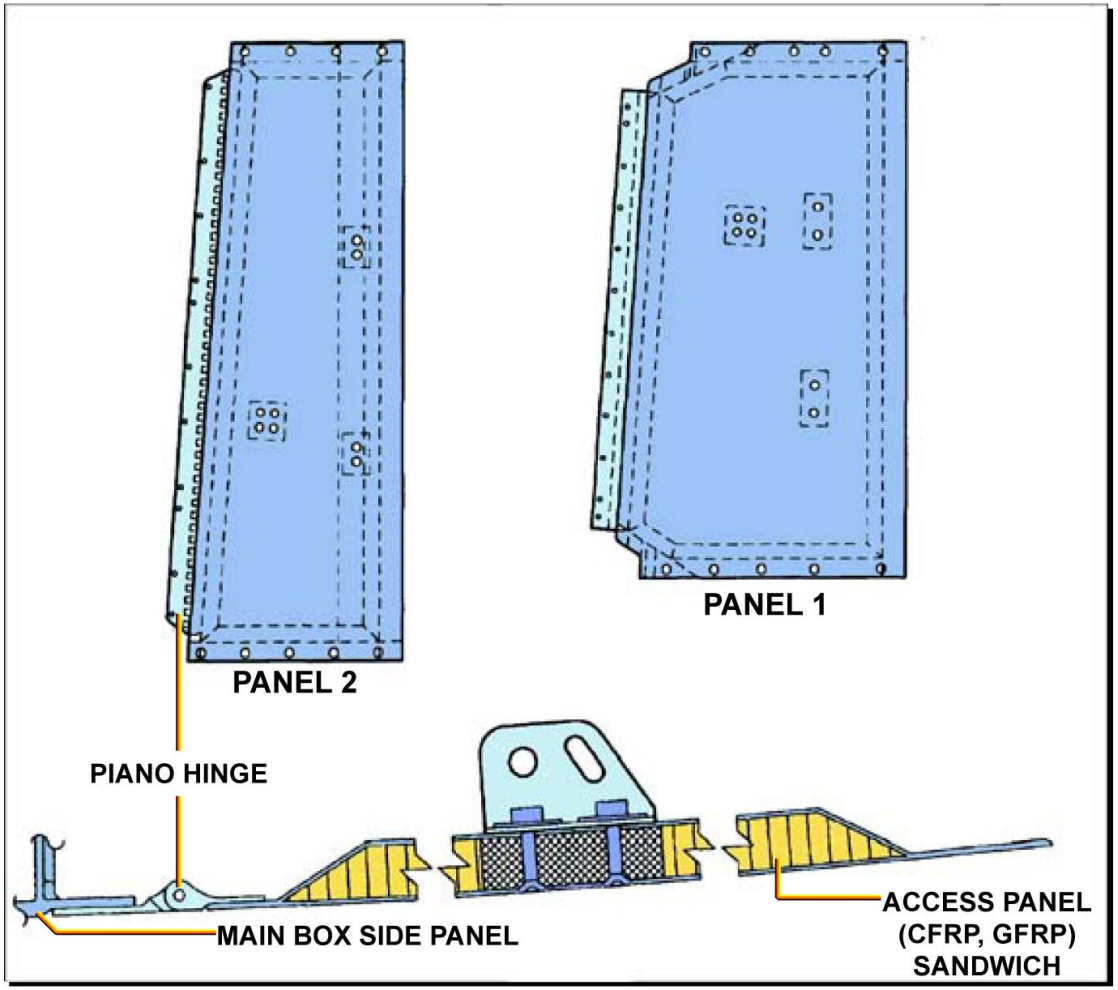
VERTICAL STABILIZER (continued)

TRAILING EDGE

The trailing edge components are attached to the rear spar of the vertical stabilizer.
The supporting structure is made from aluminium alloy fittings, hinge arms and four access panels on each side. The panels give access to the rudder servo control actuators and the hinge arms.
The panels are laminated in CFRP and GFRP bonded to a honeycomb core.

UGB13131 - U7ST0M0 - UM51D4000000001





GFRP: Glass Fiber Reinforced Plastic
CFRP: Carbon Fiber Reinforced Plastic

VERTICAL STABILIZER - TRAILING EDGE

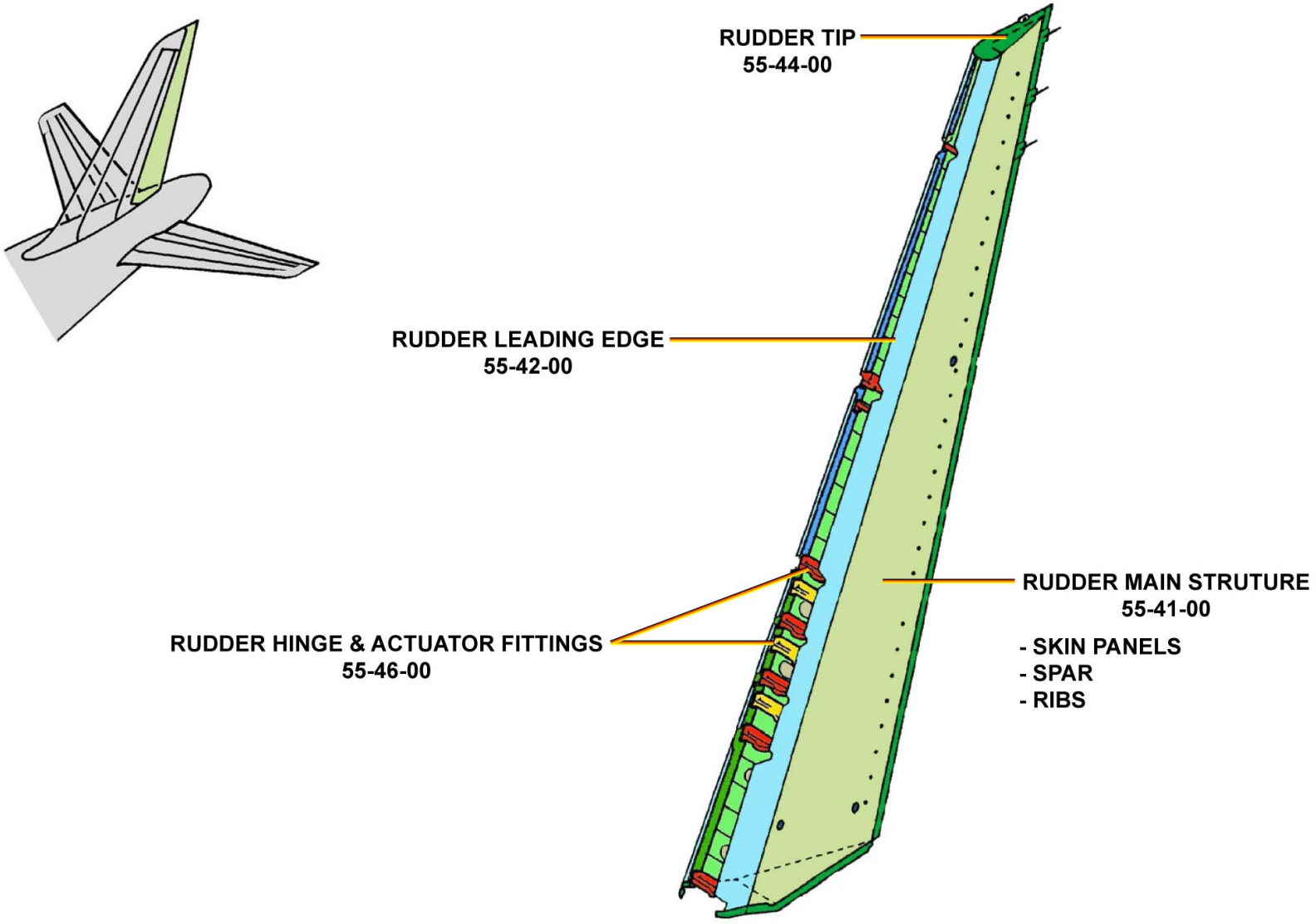
STABILIZERS D/O (3)

RUDDER

GENERAL ARRANGEMENT

The rudder is one of the primary flight controls of the aircraft.
The components of the rudder are:
- the main structure,
- the leading edge,
- the tip,
- the hinge and actuator fittings.

UGB13131 - U7ST0M0 - UM51D4000000001



RUDDER - GENERAL ARRANGEMENT

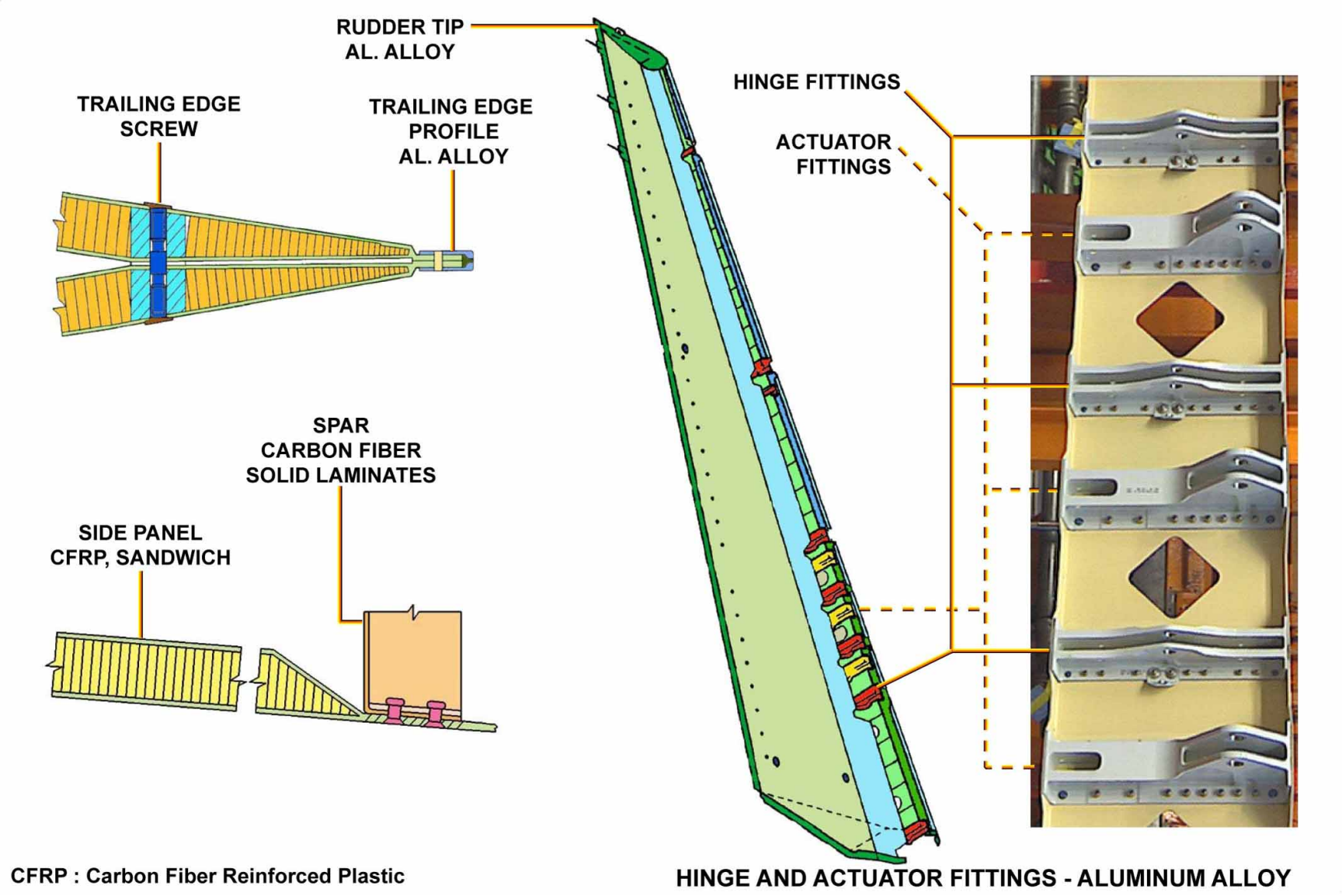
STABILIZERS D/O (3)

RUDDER (continued)

STRUCTURE LAYOUT

The rudder main structure is the primary structural component of the rudder.
It is an assembly of two CFRP sandwich panels, CFRP laminates front spar, top and bottom closing ribs.
An access panel, installed on the left hand side shell, gives access to the No. 7 rudder hinge fittings. At the other locations, cutouts in the side shells give access to the adjacent hinge fittings.
Three actuators and seven rudder hinge fittings are attached to the forward face of the rudder main structure, and rivets attach them to the spar and to the skin panels.

UGB13131 - U7ST0M0 - UM51D4000000001



RUDDER - STRUCTURE LAYOUT

WINDOWS D/O (3)

GENERAL

The windows are installed in:
- the cockpit,
- the cabin,
- the doors.

UGB13131 - U7ST0M0 - UM51D5000000001

A318
AIRBUS A318
A319
AIRBUS A319
COCKPIT WINDOWS
56-10-00
A320
AIRBUS A320
DOOR WINDOWS
56-30-00
CABIN WINDOWS
56-20-00
A321
AIRBUS A321

GENERAL

WINDOWS D/O (3)

COCKPIT WINDOWS

GENERAL ARRANGEMENT

There are two types of windows:
- the fixed windows,
- the sliding windows.

The fixed windows are described as follows:
There are four fixed windows installed in the cockpit.
- two windshields,
- two fixed side windows.

The left and right windows are symmetrical.
These windows are mounted in a frame and can be removed and installed from the exterior.
The sliding windows are installed as follows:
- on a mobile frame with a mechanism controlled from the cockpit.

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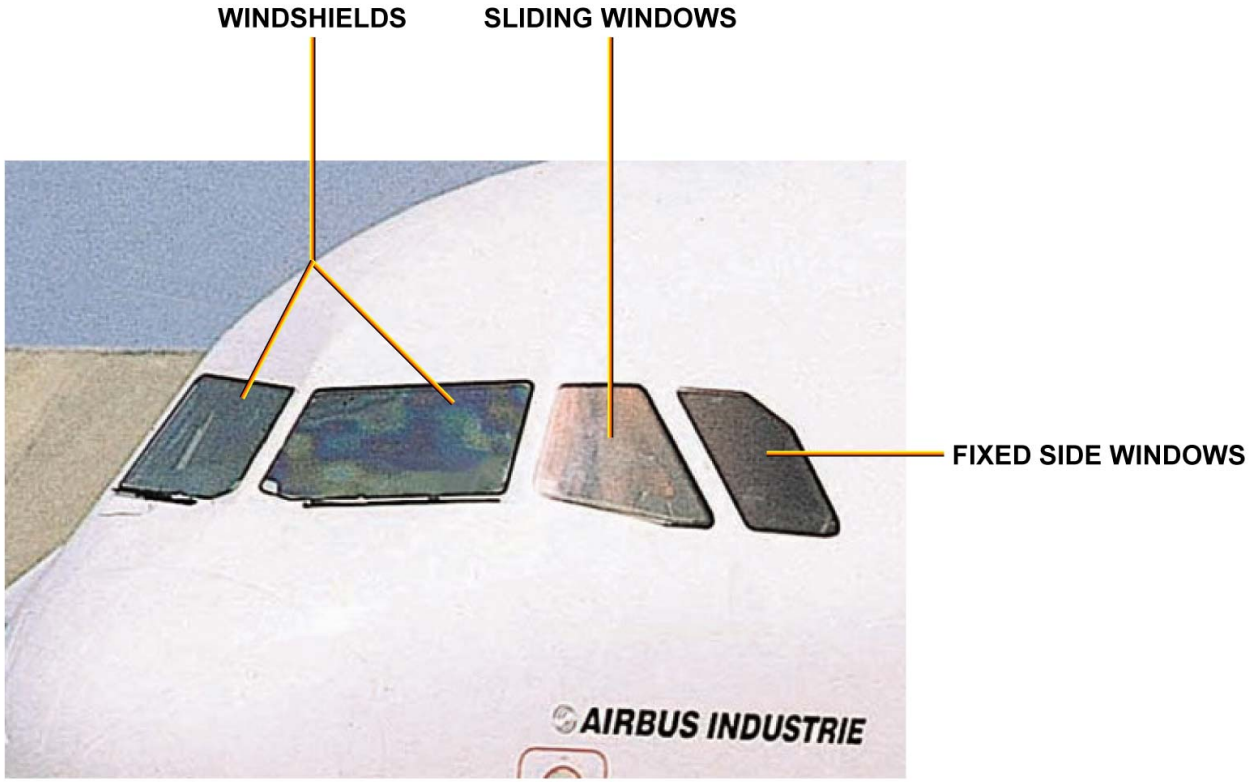


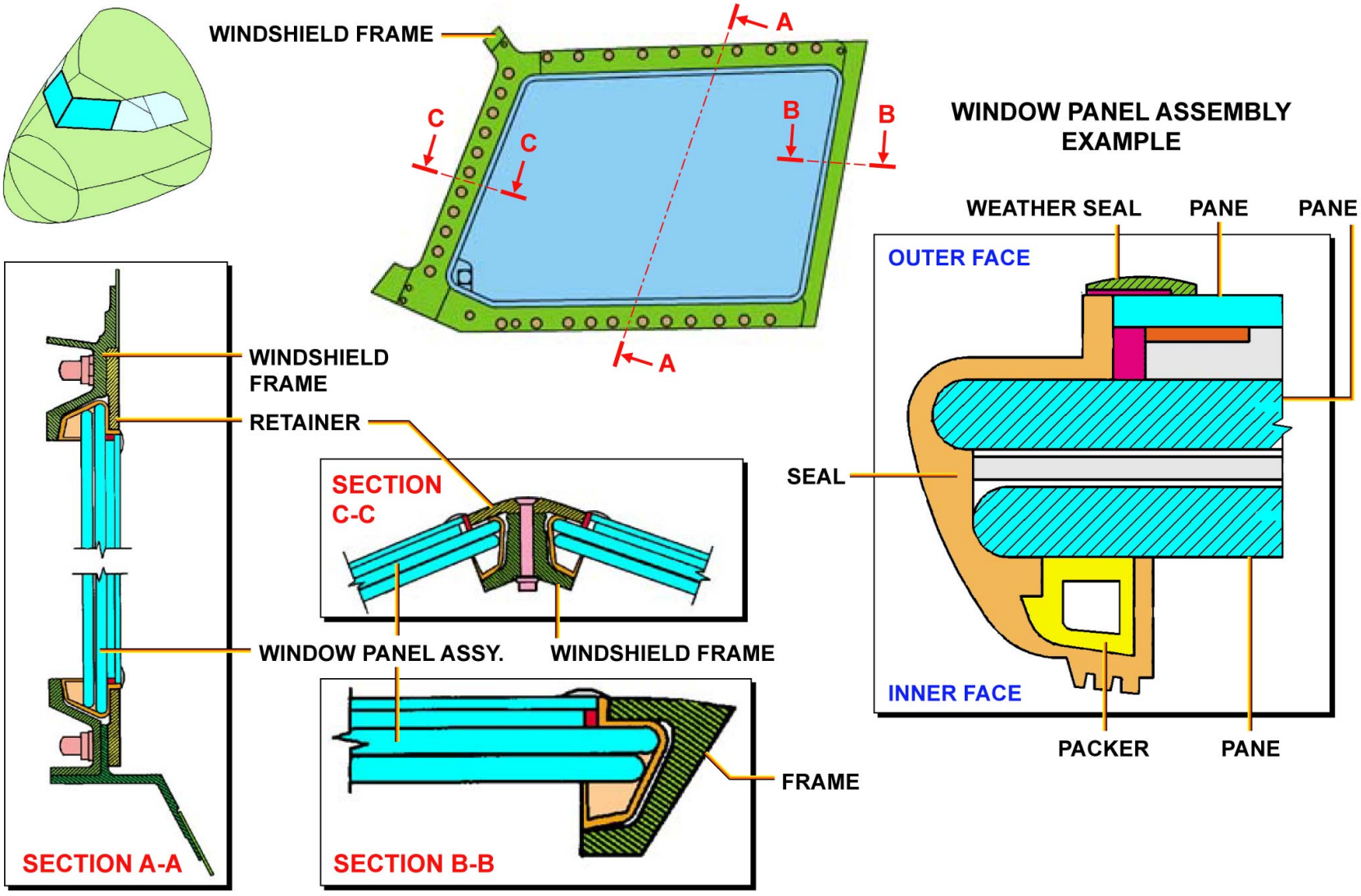
COCKPIT WINDOWS - GENERAL ARRANGEMENT

WINDOWS D/O (3)

COCKPIT WINDOWS (continued)

WINSHIELDS STRUCTURE

The windshield panes are made of several layers of hard glass and interlayers of different materials depending on the windows supplier (LUCAS-ACT, PPG, SPS), and are interchangeable. They are held by three retainers bolted onto the outer surface of the frame. They are installed with an anti-icing and defogging system.



COCKPIT WINDOWS - WINSHIELDS STRUCTURE

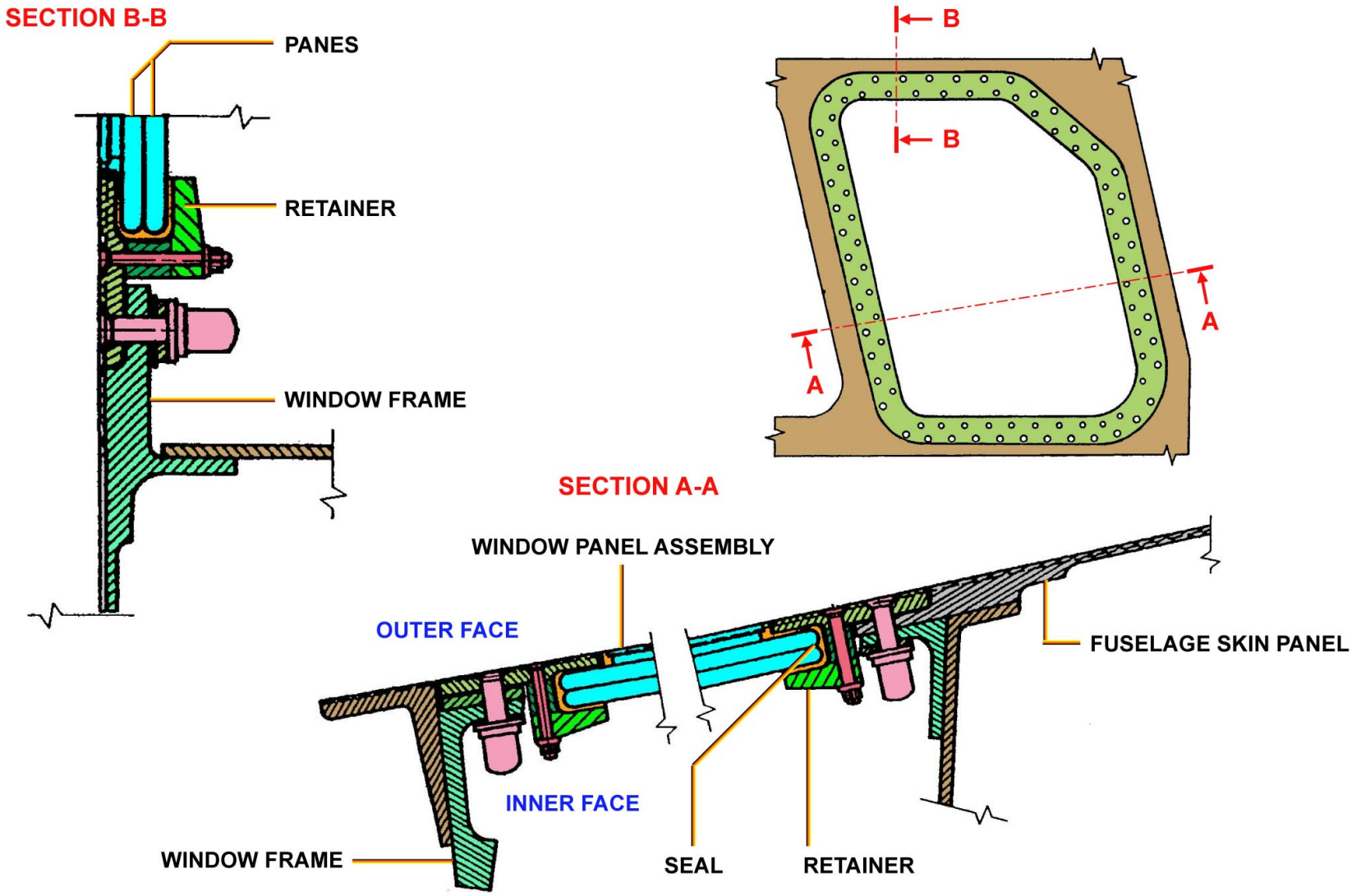
WINDOWS D/O (3)

COCKPIT WINDOWS (continued)

FIXED SIDE WINDOWS

The fixed side windows have two layers of hard glass and interlayers of different materials depending on the windows supplier (LUCAS-ACT, PPG, SPS), and are interchangeable between the different suppliers. They are held by retainers bolted onto the inner surface of the frame. They are installed with an integral anti - icing and defogging system.

UGB13131 - U7ST0M0 - UM51D5000000001



COCKPIT WINDOWS - FIXED SIDE WINDOWS

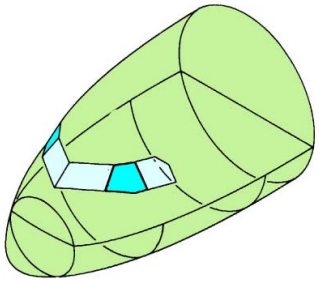
WINDOWS D/O (3)

COCKPIT WINDOWS (continued)

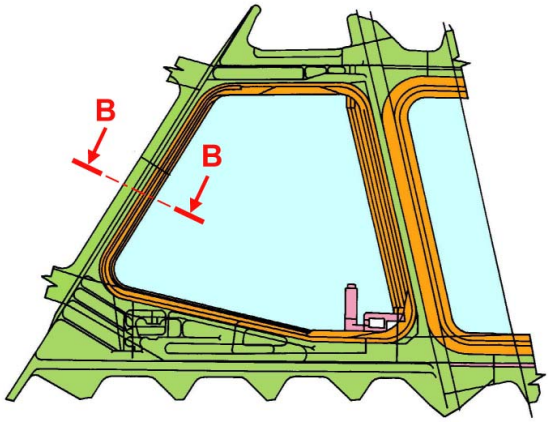
SLIDING WINDOWS

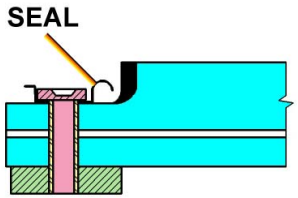
The sliding windows have several layers of hard glass and interlayers of different materials depending on the windows supplier (LUCAS-ACT, PPG, SPS), and are interchangeable between the different suppliers. Each window has an anti-icing and defogging system. The sliding windows are installed on a mobile frame, which is controlled from inside the cockpit, and the crew can use them as emergency exits.

UGB13131 - U7ST0M0 - UM51D5000000001



WINDOW PANEL ASSEMBLY
EXAMPLE

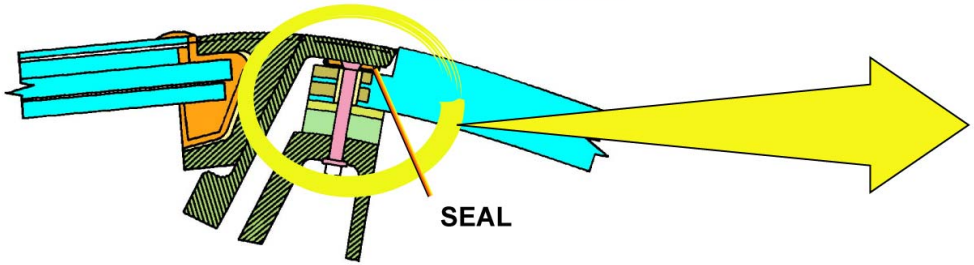


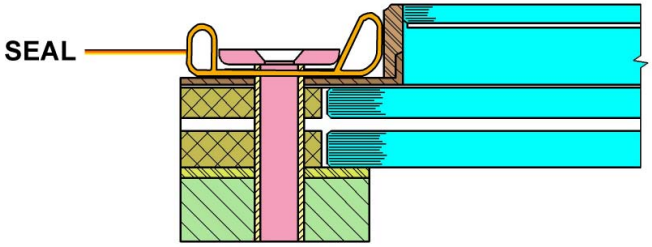


LUCAS/ACT SUPPLIER

PPG SUPPLIER

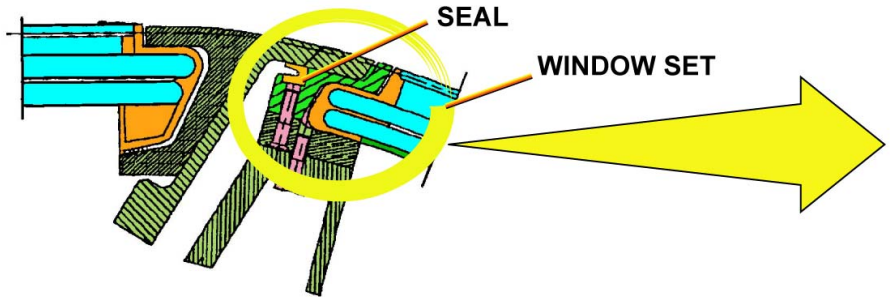
SECTION B-B

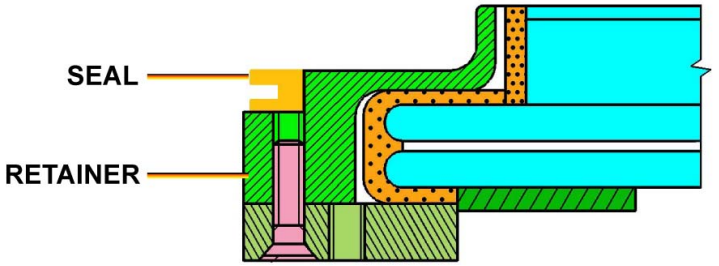




SPS SUPPLIER

SECTION B-B





COCKPIT WINDOWS - SLIDING WINDOWS

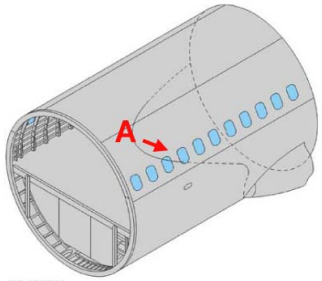
WINDOWS D/O (3)

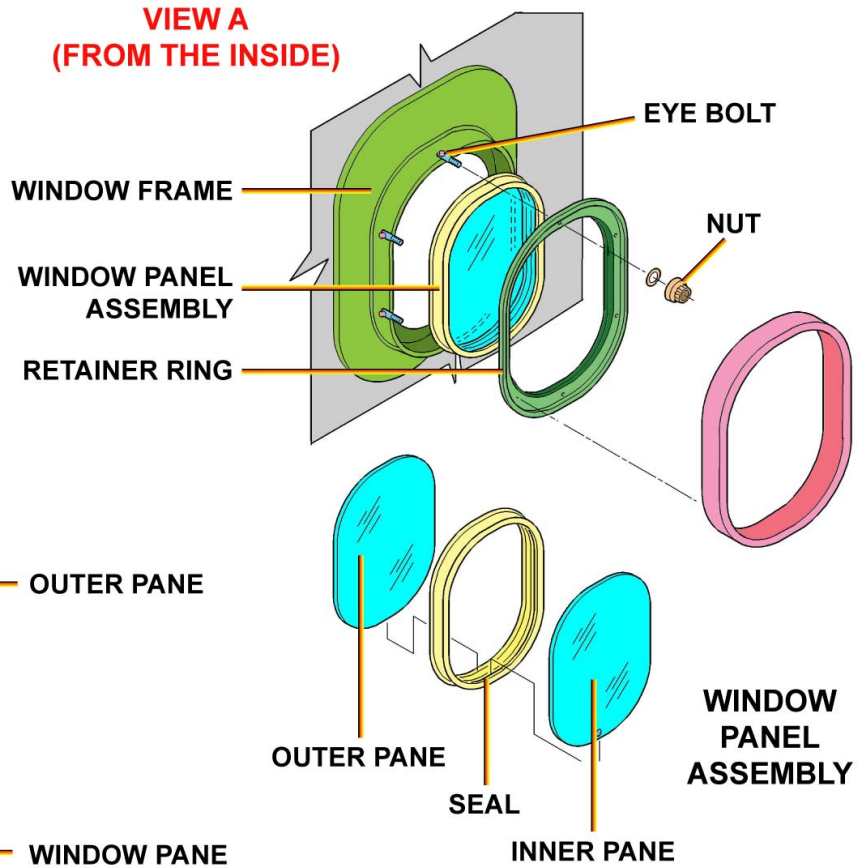
CABIN WINDOWS

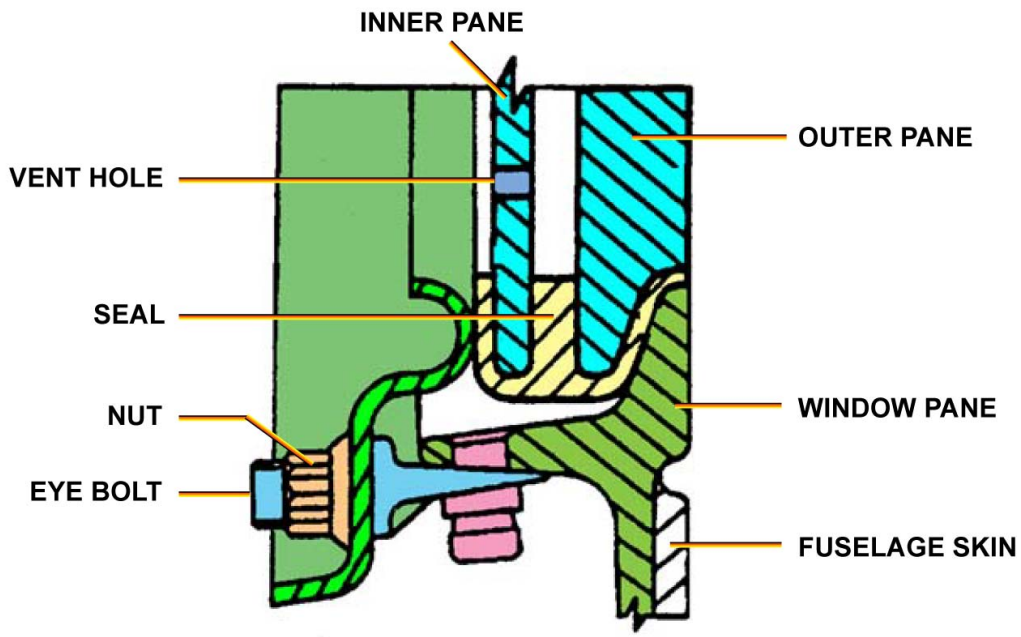
GENERAL ARRANGEMENT

The windows are installed in frames and create a smooth surface with the fuselage skin.
The cabin windows are installed and removed from the inside of the aircraft.
The window sets consists of a seal, inner and outer panes made of stretched acrylic resin held together by the seal. A retainer ring and eye bolts keeps the window set in position. A vent hole in the inner pane is used to only pressurize the outer pane in normal operation.
The inner pane will maintain the cabin pressure in case of outer pain failure.

UGB13131 - U7ST0M0 - UM51D5000000001







CABIN WINDOWS - GENERAL ARRANGEMENT

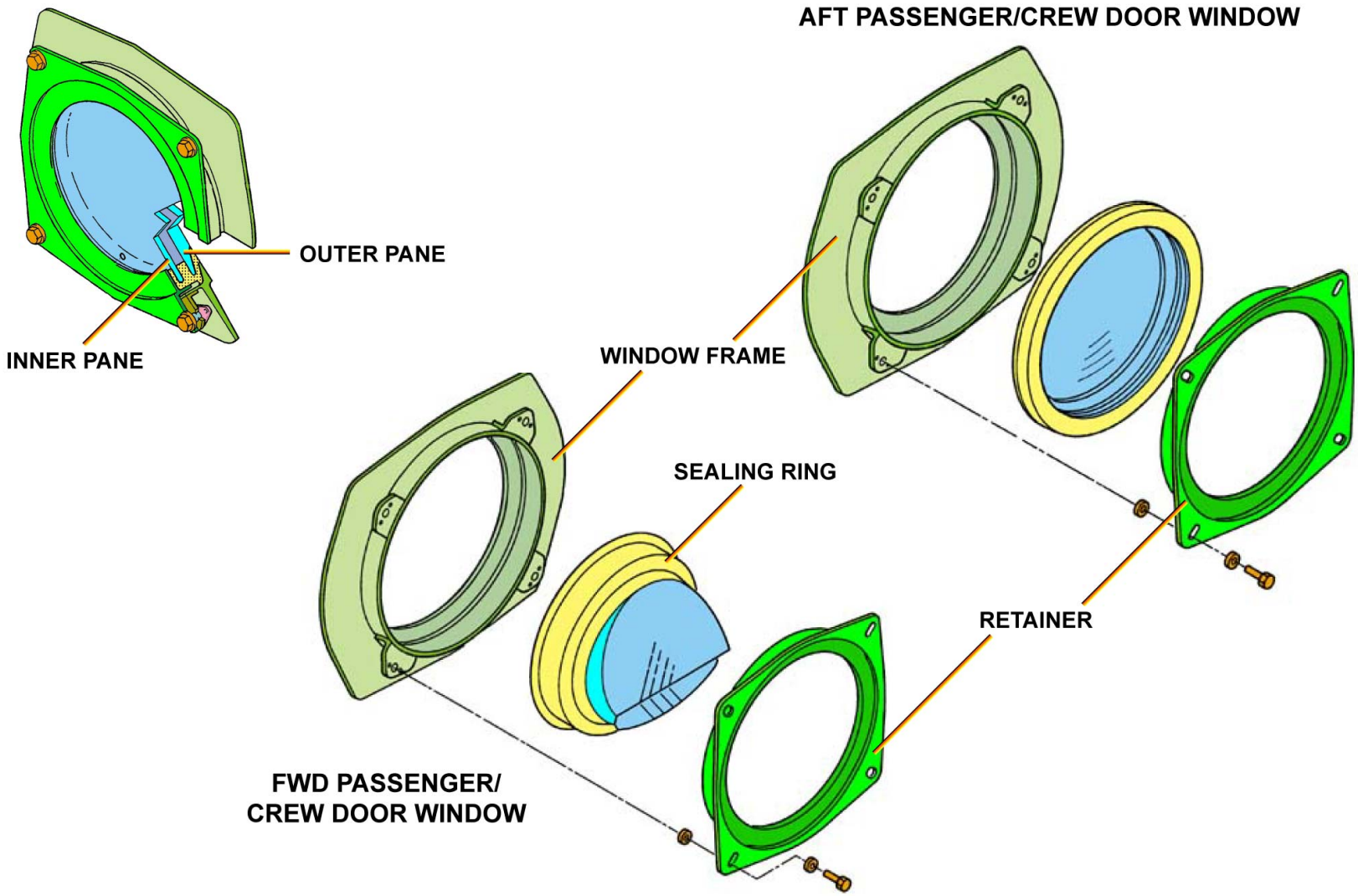
WINDOWS D/O (3)

DOOR WINDOWS

STRUCTURE LAYOUT

The passenger/crew doors and emergency exit doors have a circular window. They are used for inspection and observation in order to check from outside if the cabin is pressurized or to verify if the outside is clear for door opening/slide deployment.
The windows have a seal, inner and outer panes made of stretched acrylic, held in position by a retainer ring. A vent hole in the inner pane allows to pressurize only the outer pane in normal operation.
The inner pain is able to maintain the cabin pressure in case of outer pane failure.

UGB13131 - U7ST0M0 - UM51D5000000001



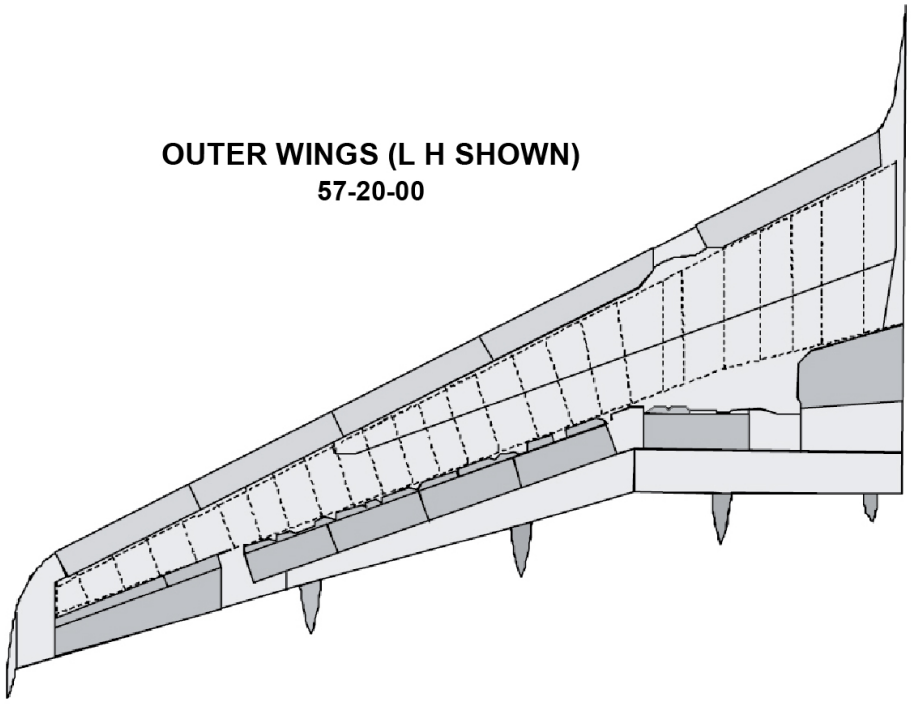
DOOR WINDOWS - STRUCTURE LAYOUT

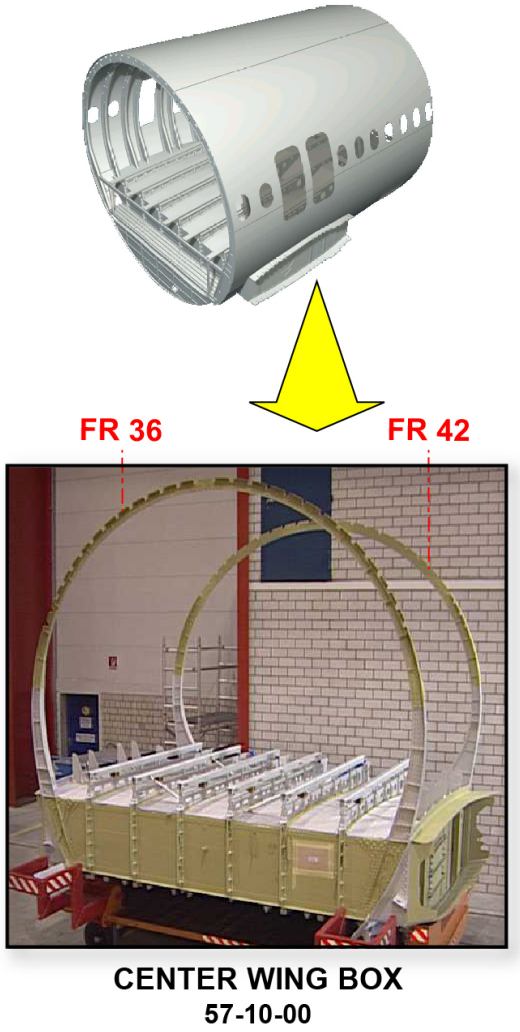
WINGS D/O (3)

GENERAL

The aircraft wing is in the continuity of the structure going through the fuselage which is divided into three parts:
- the center wing box,
- the left outer wing and,
- the right outer wing.

UGB13131 - U7ST0M0 - UM51D6000000001


OUTER WINGS (L H SHOWN)
57-20-00


FUSELAGE SECTION 15/21
FR 36
FR 42
CENTER WING BOX
57-10-00

GENERAL

WINGS D/O (3)

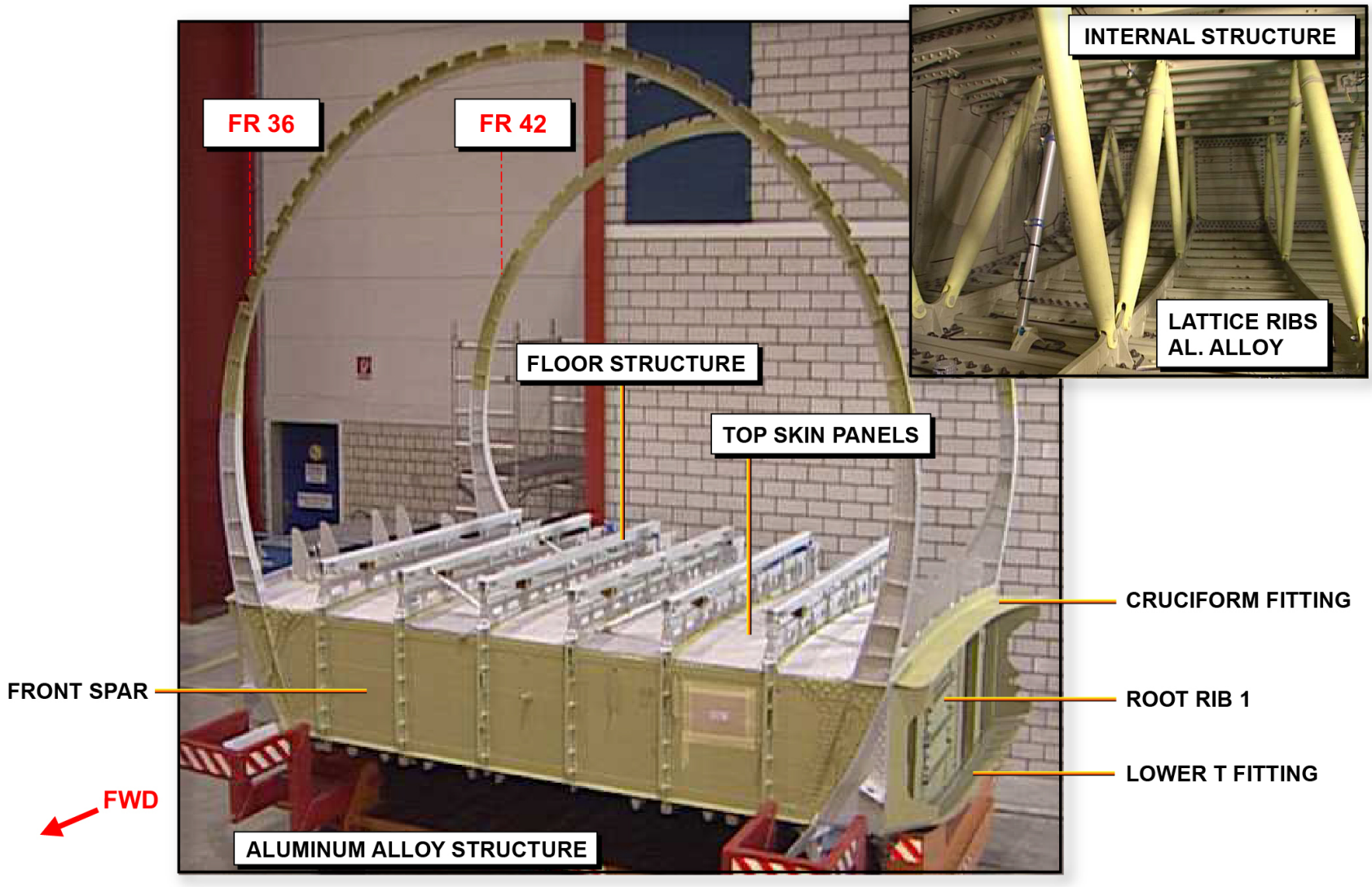
CENTER WING BOX

GENERAL ARRANGEMENT

The center wing is installed in the center fuselage between the main frames (Fr) 36 and 42 to make an integral fuel tank.
The center wing box structure has:
- the front and the rear spars respectively located at Fr 36 and 42,
- top and bottom skin panels,
- the two main frames 36 and 42,
- internal spanwise lattice ribs,
- the left rib 1 and the right rib 1.

The junction between the center wing box and the outer wings is done at the left hand and right hand sides rib 1.
The access for maintenance to the center wing box is done through two triangular openings in the rear spar.

UGB13131 - U7ST0M0 - UM51D6000000001



CENTER WING BOX - GENERAL ARRANGEMENT

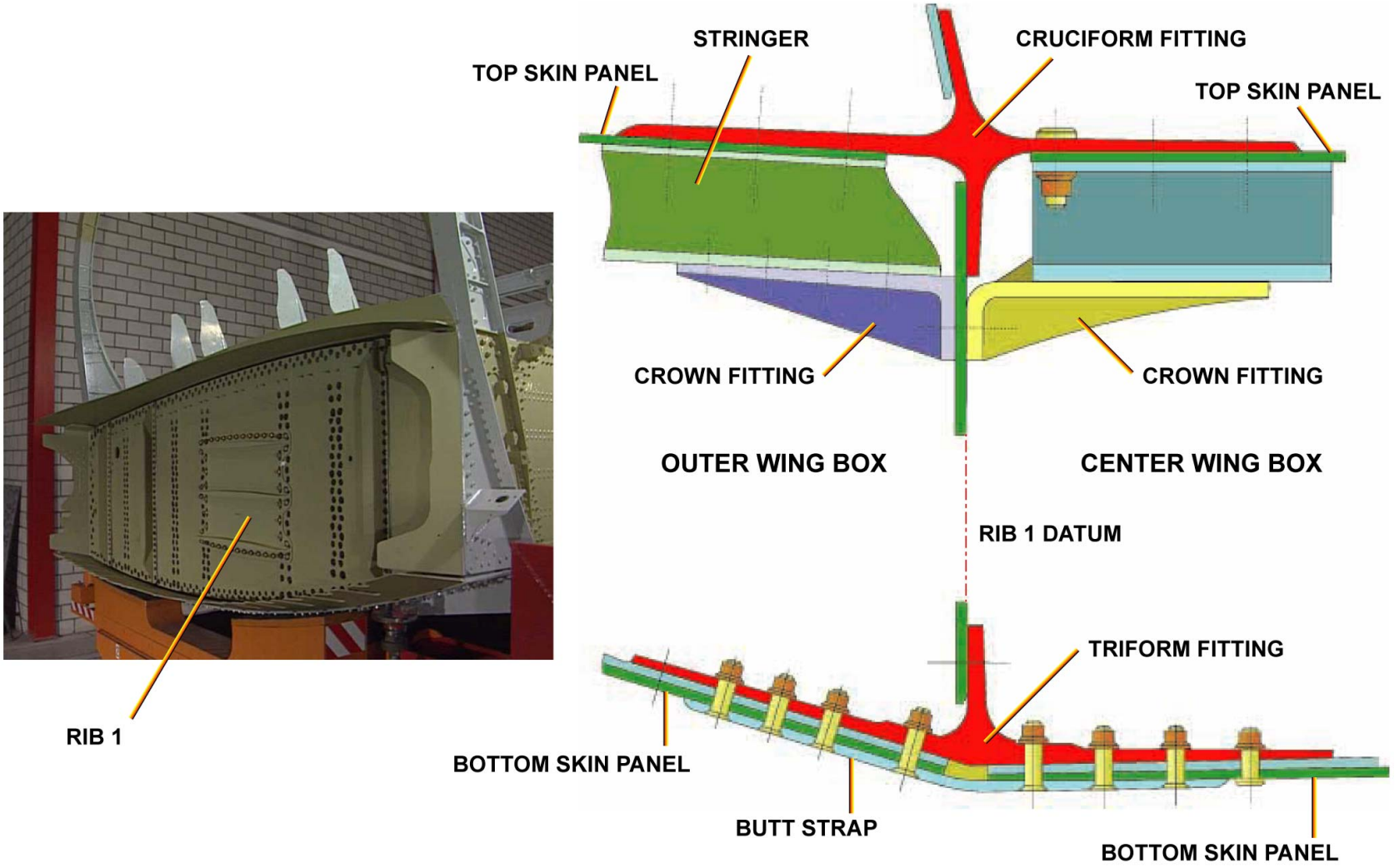
WINGS D/O (3)

CENTER WING BOX (continued)

WING ROOT JOINT

An upper cruciform fitting and a lower triform fitting ensure the junction between the center wing box and the outer wing box.
The upper cruciform fitting makes the junction between the center wing box top skin panels, the outer wing box top skin panels, fuselage and Rib 1.
The lower triform fitting and a safety butt-strap fitting make the junction between the center wing box bottom skin panels, the outer wing box bottom skin panels and Rib 1.

UGB13131 - U7ST0M0 - UM51D6000000001



CENTER WING BOX - WING ROOT JOINT

WINGS D/O (3)

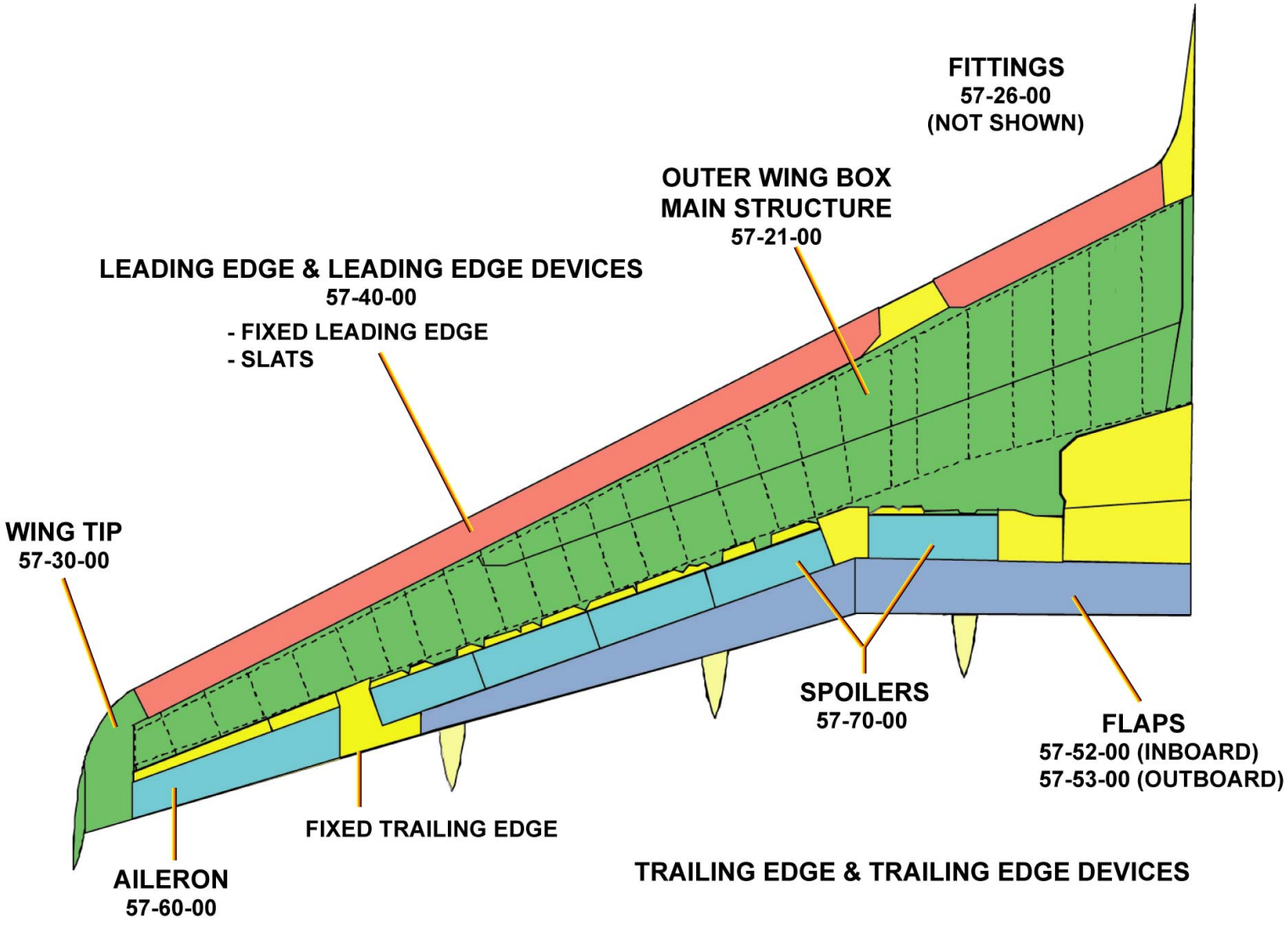
OUTER WING

GENERAL ARRANGEMENT

Each outer wing has:
- a main structure (outer wing box),
- a wing tip,
- a leading edge and leading edge devices,
- a trailing edge and trailing edge devices.

The trailing edge control surfaces are:
- the inboard flap,
- the outboard flap,
- the two ailerons,
- the six spoilers.

UGB13131 - U7ST0M0 - UM51D6000000001



OUTER WING - GENERAL ARRANGEMENT

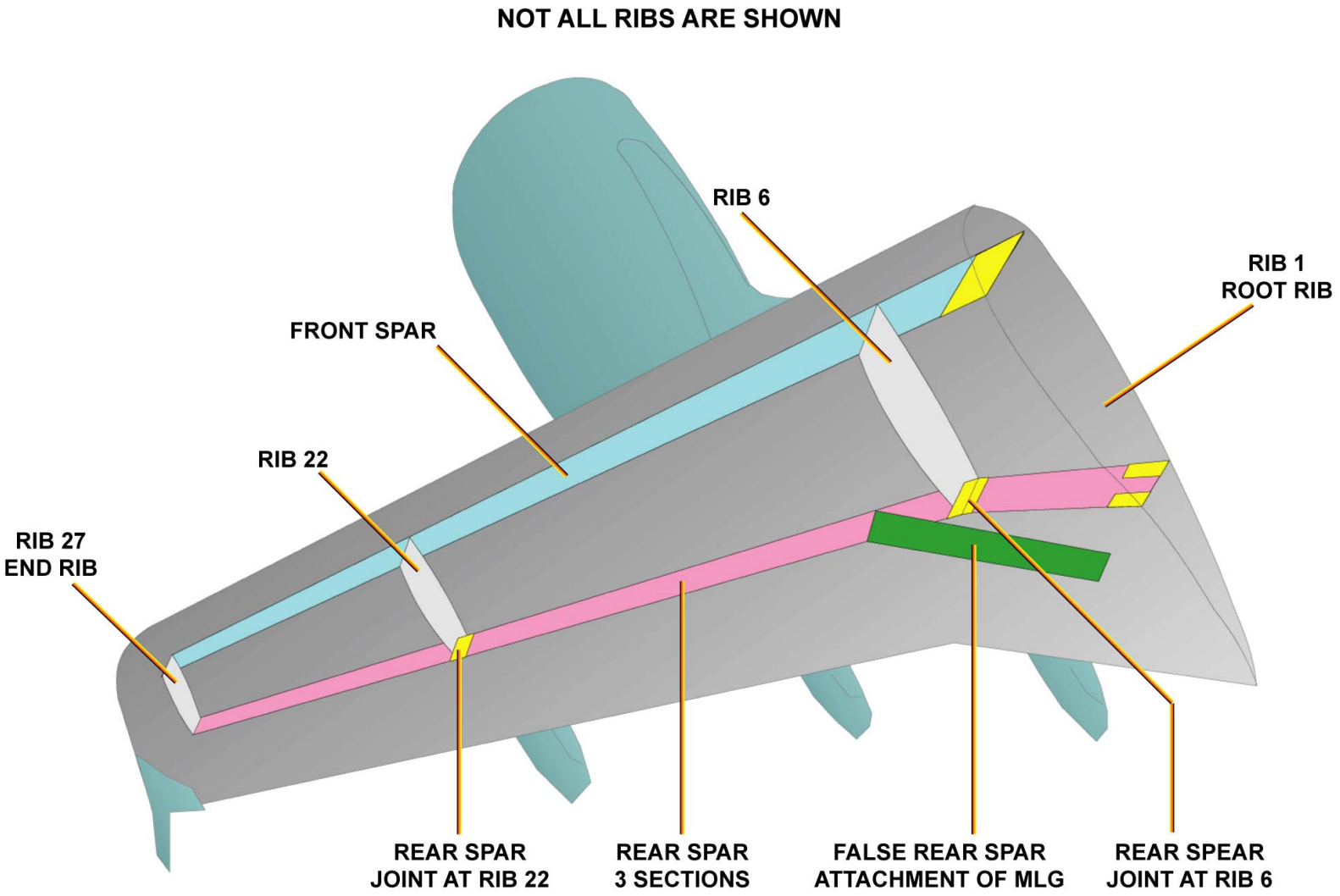
WINGS D/O (3)

OUTER WING BOX

GENERAL ARRANGEMENT

The outer wing box tapers from Rib 1 (the wing root) to Rib 27 hold:
- the wing spars (front and rear),
- the ribs,
- the top and bottom skin panels,
- the top and bottom stringers,
- the wing-root joint.

UGB13131 - U7ST0M0 - UM51D6000000001



OUTER WING BOX - GENERAL ARRANGEMENT

WINGS D/O (3)

OUTER WING BOX (continued)

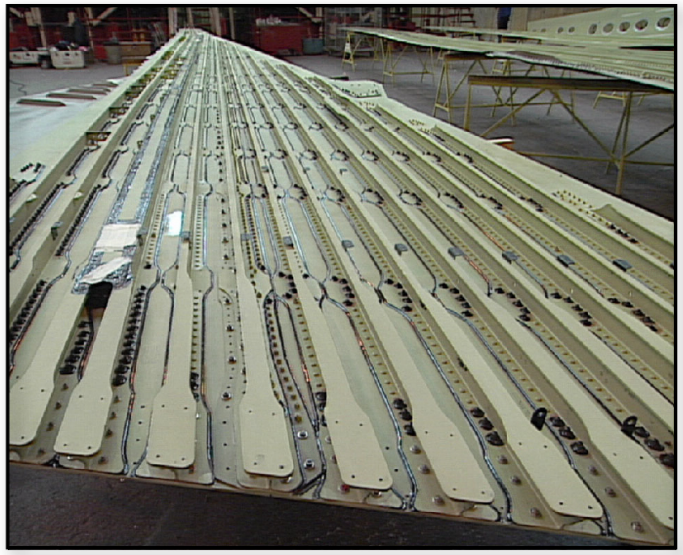
SKIN PANELS

The top and the bottom surfaces of the outer wing box are made of skin panels machined from aluminum alloy.
There are two top skin panels and three bottom skin panels. The skin panels are stiffened by stringers machined in aluminum alloy extrusions.
The joints between panels are aluminum alloy butt straps.

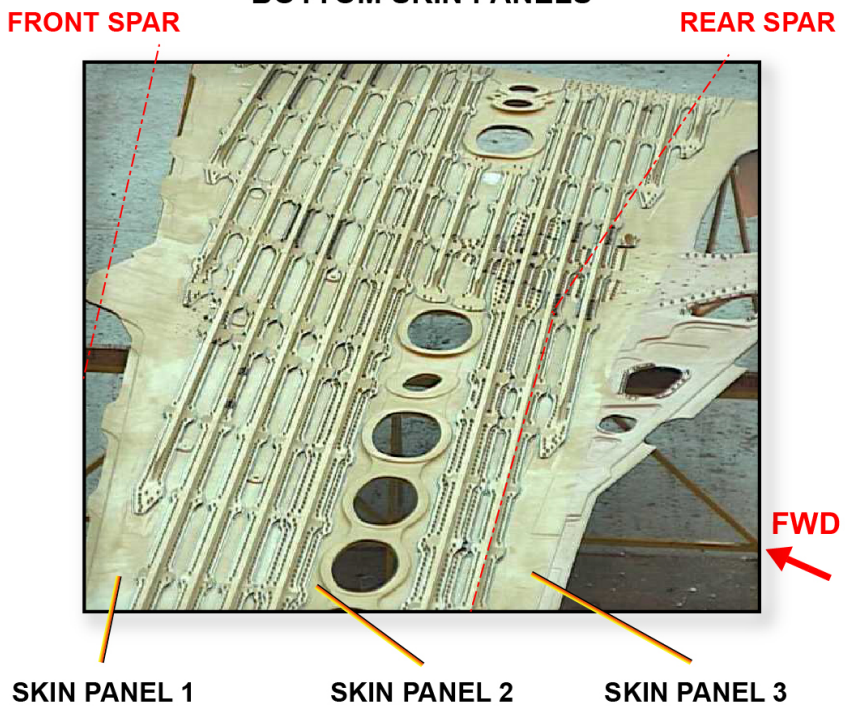
UGB13131 - U7ST0M0 - UM51D6000000001

ALUMINUM ALLOY SKIN PANELS

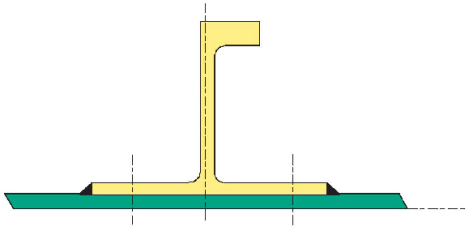
TOP SKIN PANELS



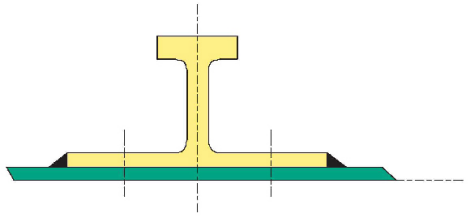
BOTTOM SKIN PANELS



WITH ACCESS HOLES



TYPICAL STRINGER SHAPE



TYPICAL STRINGER SHAPE

OUTER WING BOX - SKIN PANELS

WINGS D/O (3)

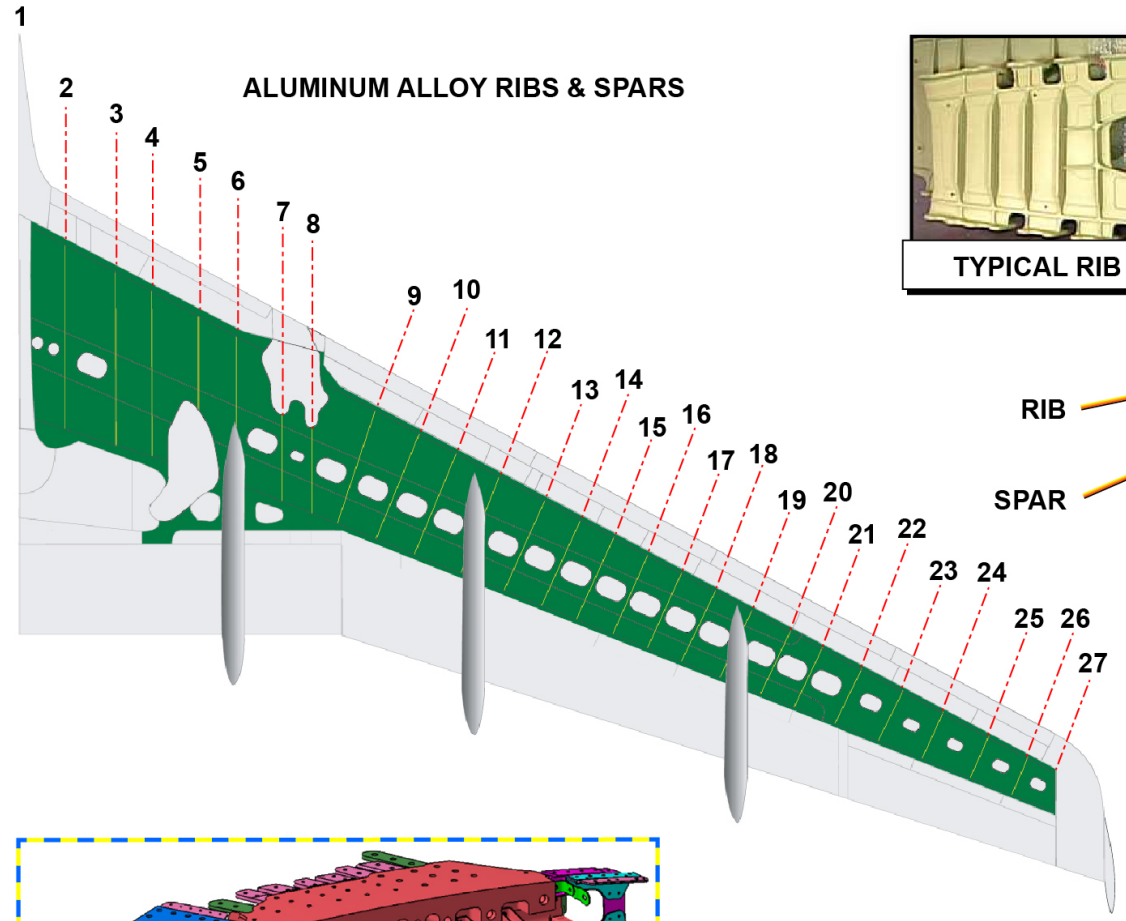
OUTER WING BOX (continued)

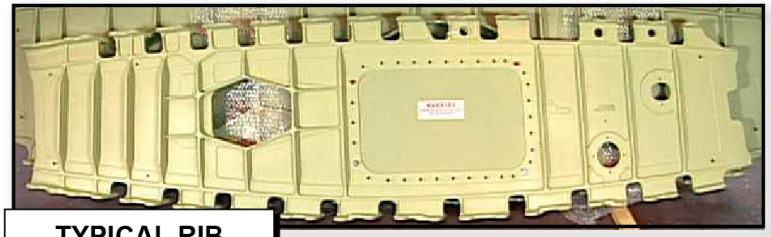
RIBS & SPARS

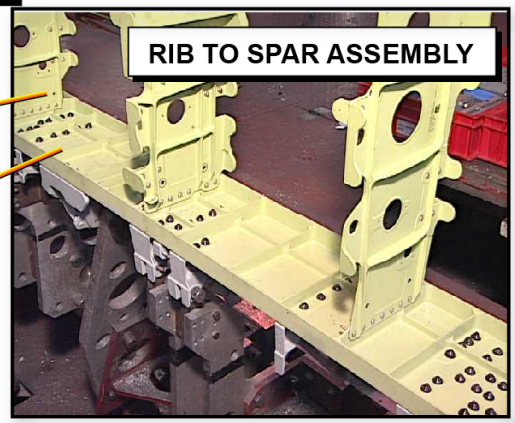
Ribs:
There are 27 ribs, machined from aluminum alloy, installed in the outer wing box of each outer wing. Each rib is continuous between the front and rear spars. The junction between the center wing box and the outer wing joint is at Rib 1. Rib 1 is the boundary of the lateral section of the center wing box. Ribs 22 and 27 make the other lateral boundaries of the fuel and vent tanks.
Spars:
The wing spars are machined from aluminum alloy. They give strength to the wing box and they extend from Rib 1 to Rib 27.

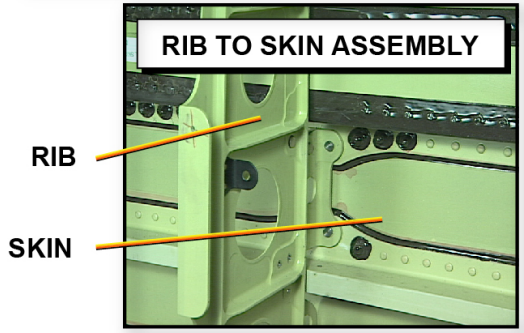
NOTE: If sharklets are installed on A/C, Rib 27 is fully redesigned to attach a sharklet to the wing.

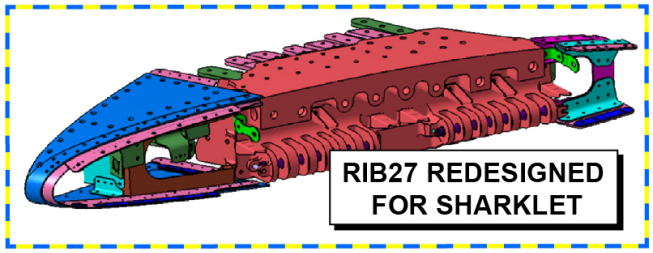
UGB13131 - U7ST0M0 - UM51D6000000001











OPTION

OUTER WING BOX - RIBS & SPARS

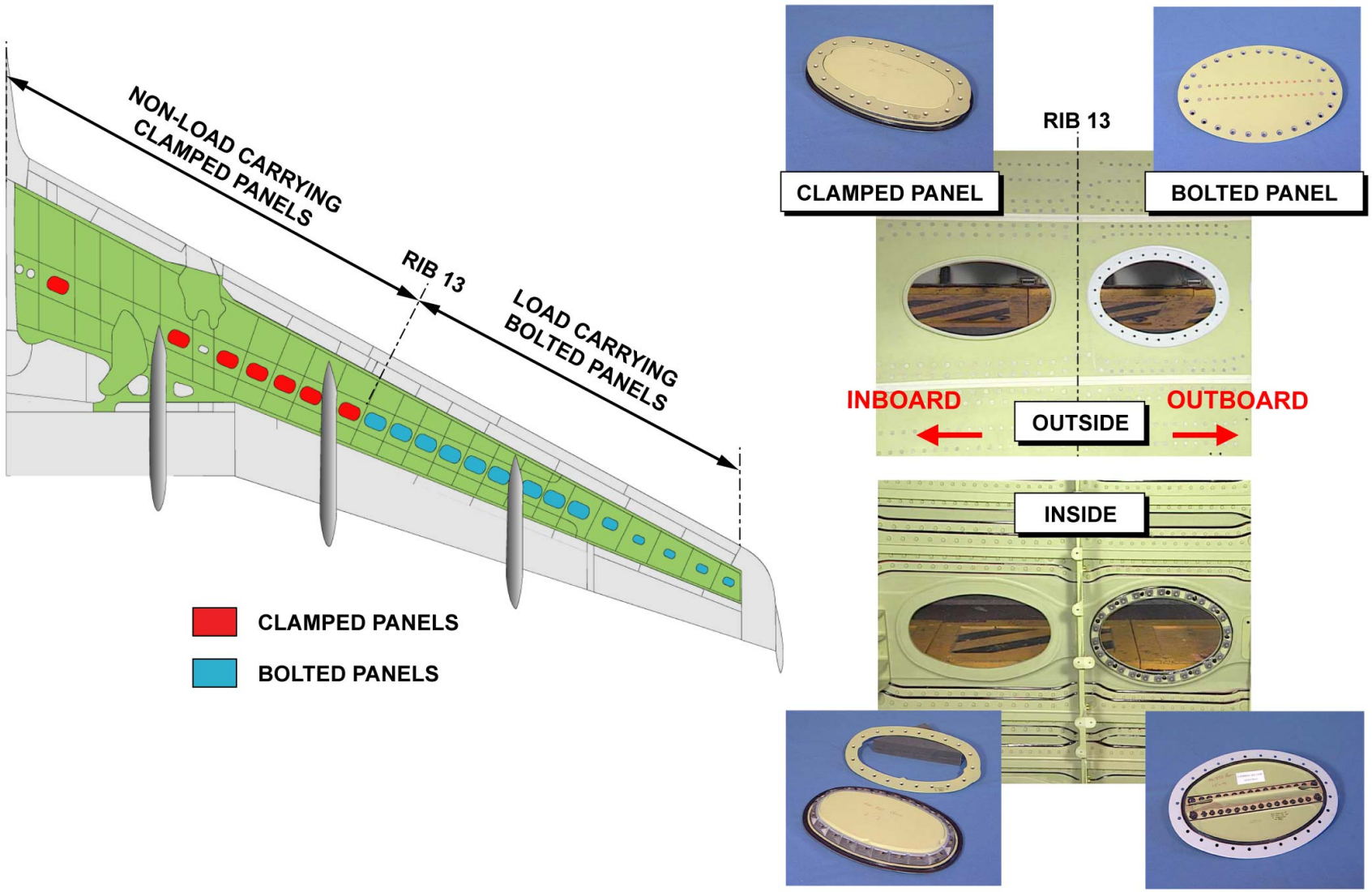
WINGS D/O (3)

OUTER WING BOX (continued)

ACCESS HOLES/COVERS

There are twenty-one access covers installed in the bottom skin panels of the outer wing box. All panels close the openings that give access to the outer wing box.
There are:
- seven non load-carrying access panels between Rib 1 and Rib 13, clamped on the wing skin,
- fourteen load-carrying access panels between Rib 14 and Rib 27, bolted through the skin panel.

UGB13131 - U7ST0M0 - UM51D6000000001



OUTER WING BOX - ACCESS HOLES/COVERS

WINGS D/O (3)

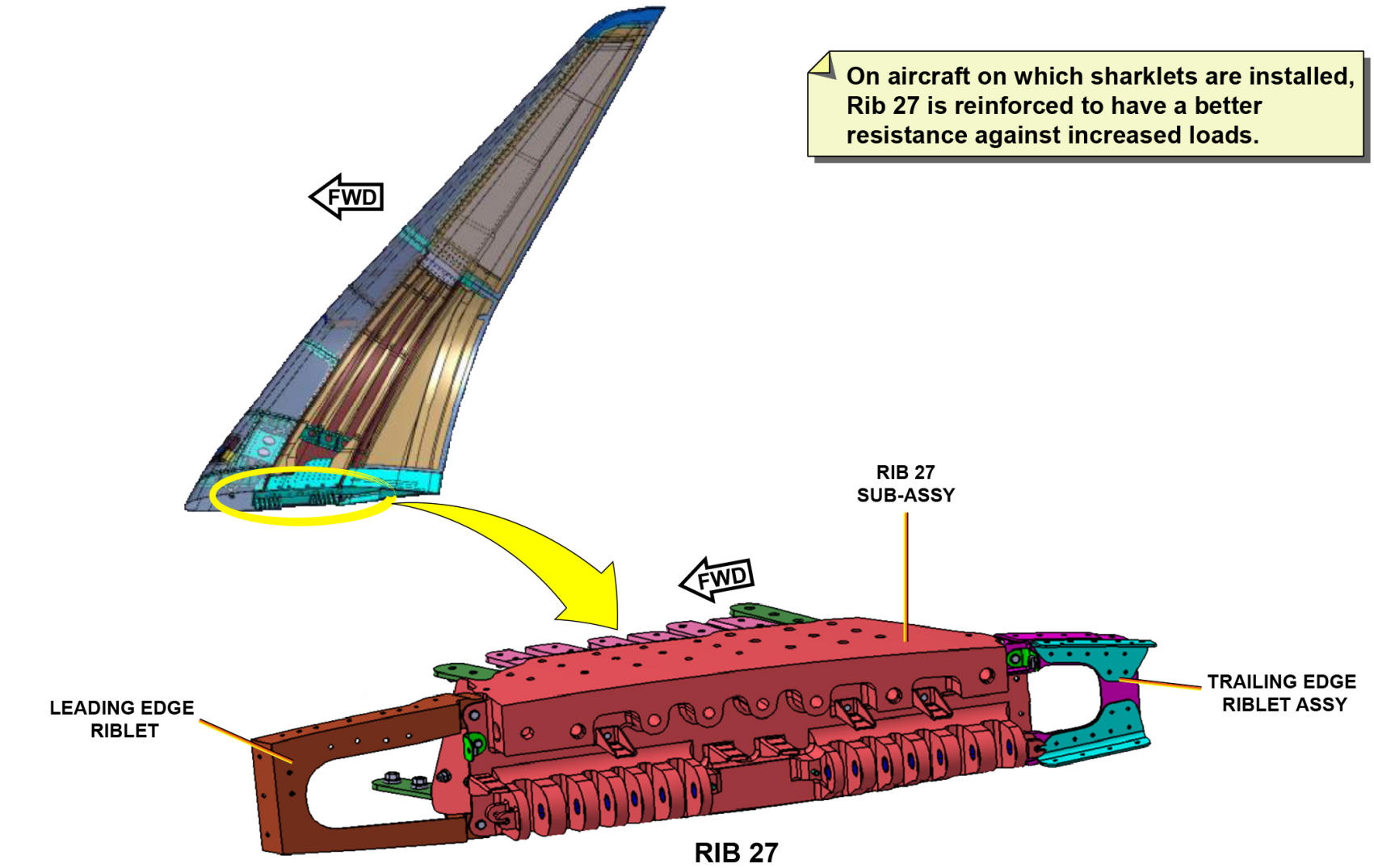
OUTER WING BOX (continued)

REINFORCEMENT WITH SHARKLET (OPTIONAL)

For aircraft on which sharklets are installed, some reinforcements are necessary to get a better resistance against increased loads:
- wing front spar,
- fixed leading edge structure,
- wing rear spars,
- fixed trailing edge structure,
- wing covers,
- wing ribs.

Rib 27 and its interfaces are fully redesigned:
- Rib 27 is now a box Rib rather than a traditional single-sided Rib.
- The interface between the sharklet Rib 27a and Rib 27 is a tension fitting at the top of the joint and a multi-lug and pin arrangement at the bottom of the joint.
- The Fixed Leading Edge (FLE) and Fixed Trailing Edge (FTE) parts are attached as a subassembly to the main Rib.
- The leading edge panel is now a removable panel to give access for sharklet installation.

UGB13131 - U7ST0M0 - UM51D6000000001



OUTER WING BOX - REINFORCEMENT WITH SHARKLET (OPTIONAL)

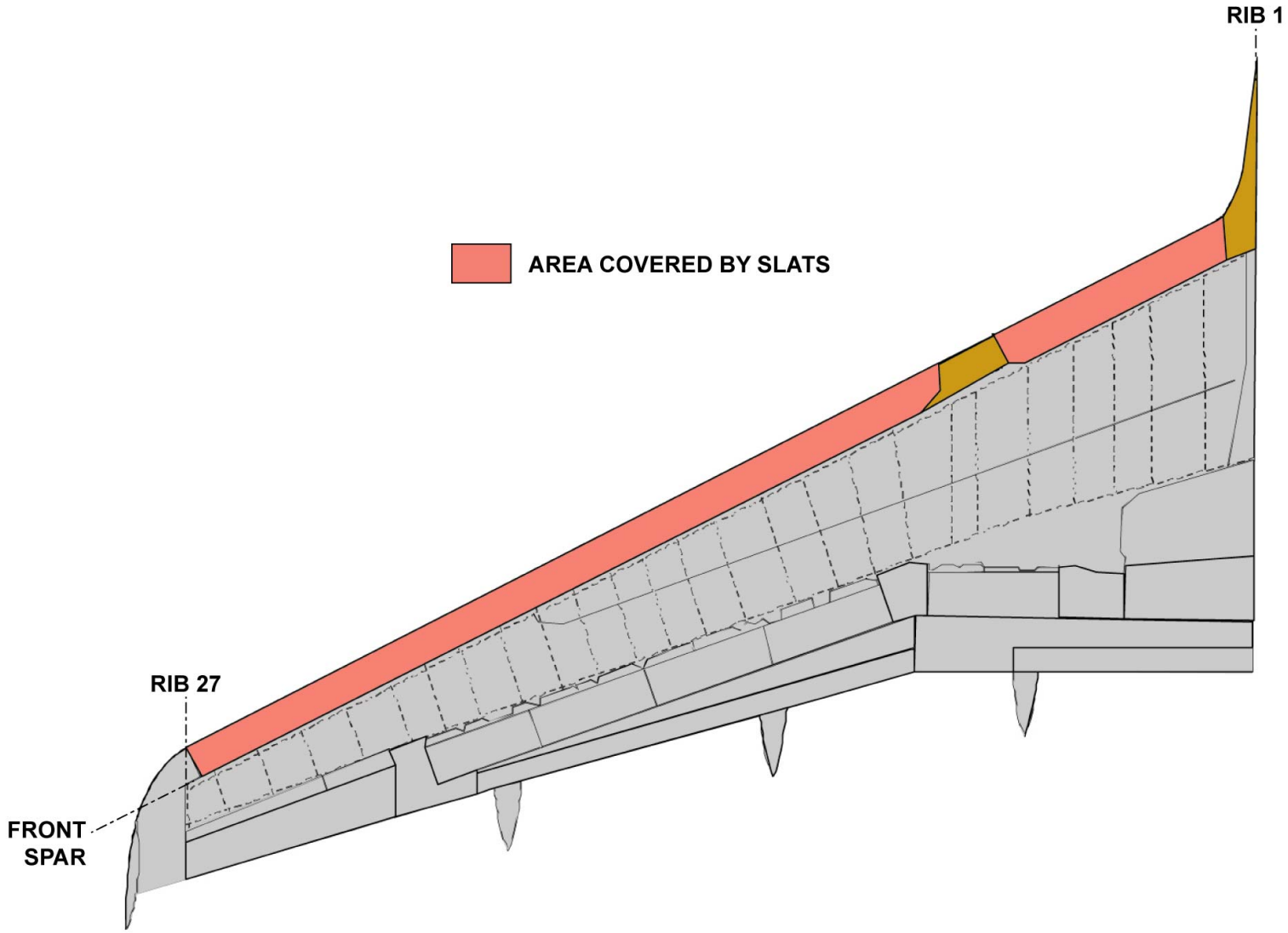
WINGS D/O (3)

FIXED LEADING EDGE

GENERAL ARRANGEMENT

The fixed Leading Edge (LE) assembly is located forward of the front spar of the wing-box.

UGB13131 - U7ST0M0 - UM51D6000000001



FIXED LEADING EDGE - GENERAL ARRANGEMENT

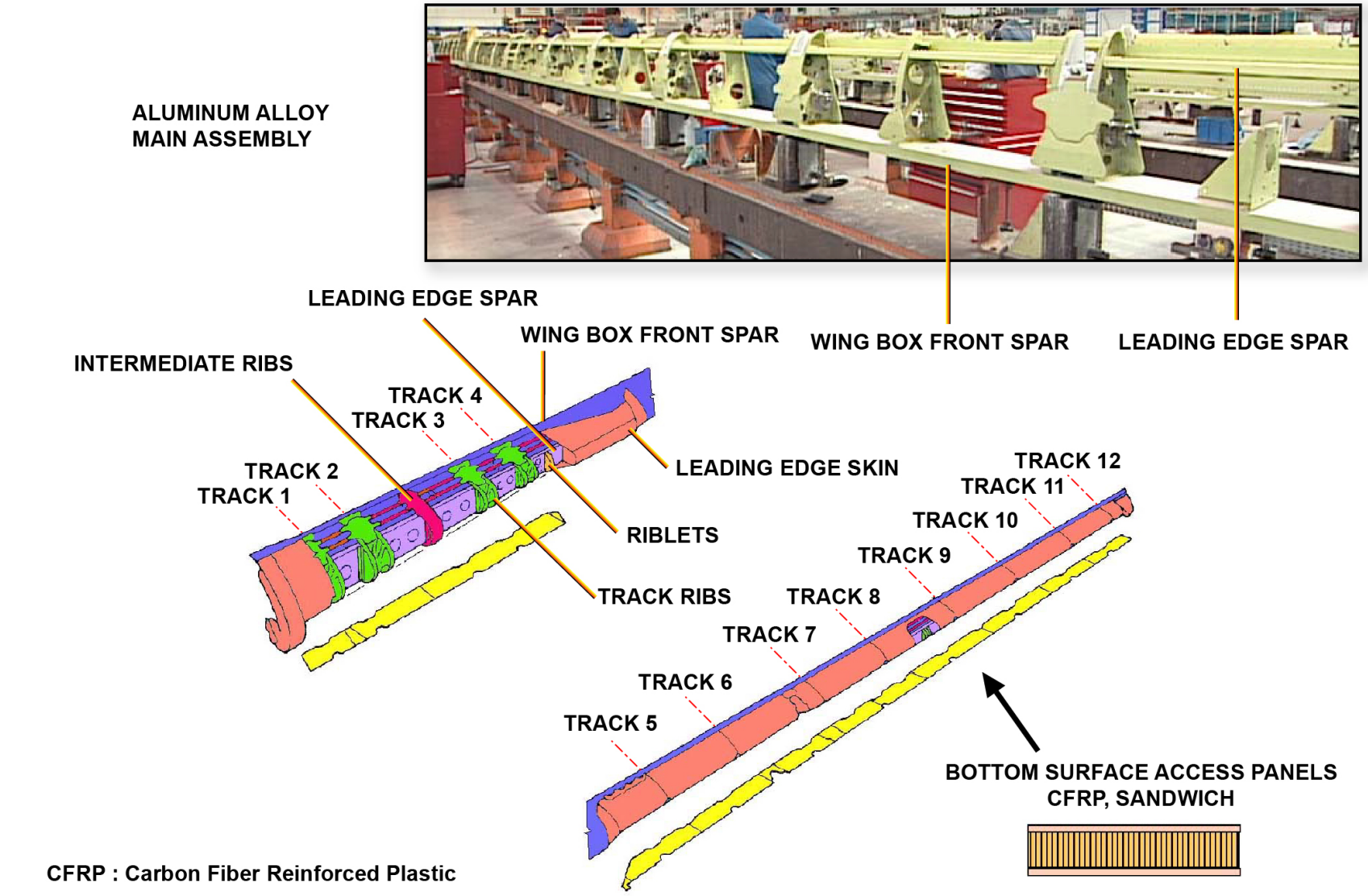
WINGS D/O (3)

FIXED LEADING EDGE (continued)

STRUCTURE LAYOUT (1/2)

The fixed leading edge assembly is made of:
- the D-nose assembly, composed of aluminum alloy parts:
- the support ribs and riblets (riblets are installed between the wing box front spar and the LE spar),
- the sub spar,
- the LE skin.
- three top surface access panels,
- bottom surface access panels, which are made of Carbon Fiber Reinforced Plastic (CFRP) sandwich construction and are attached with quick release fasteners.

UGB13131 - U7ST0M0 - UM51D6000000001



FIXED LEADING EDGE - STRUCTURE LAYOUT (1/2)

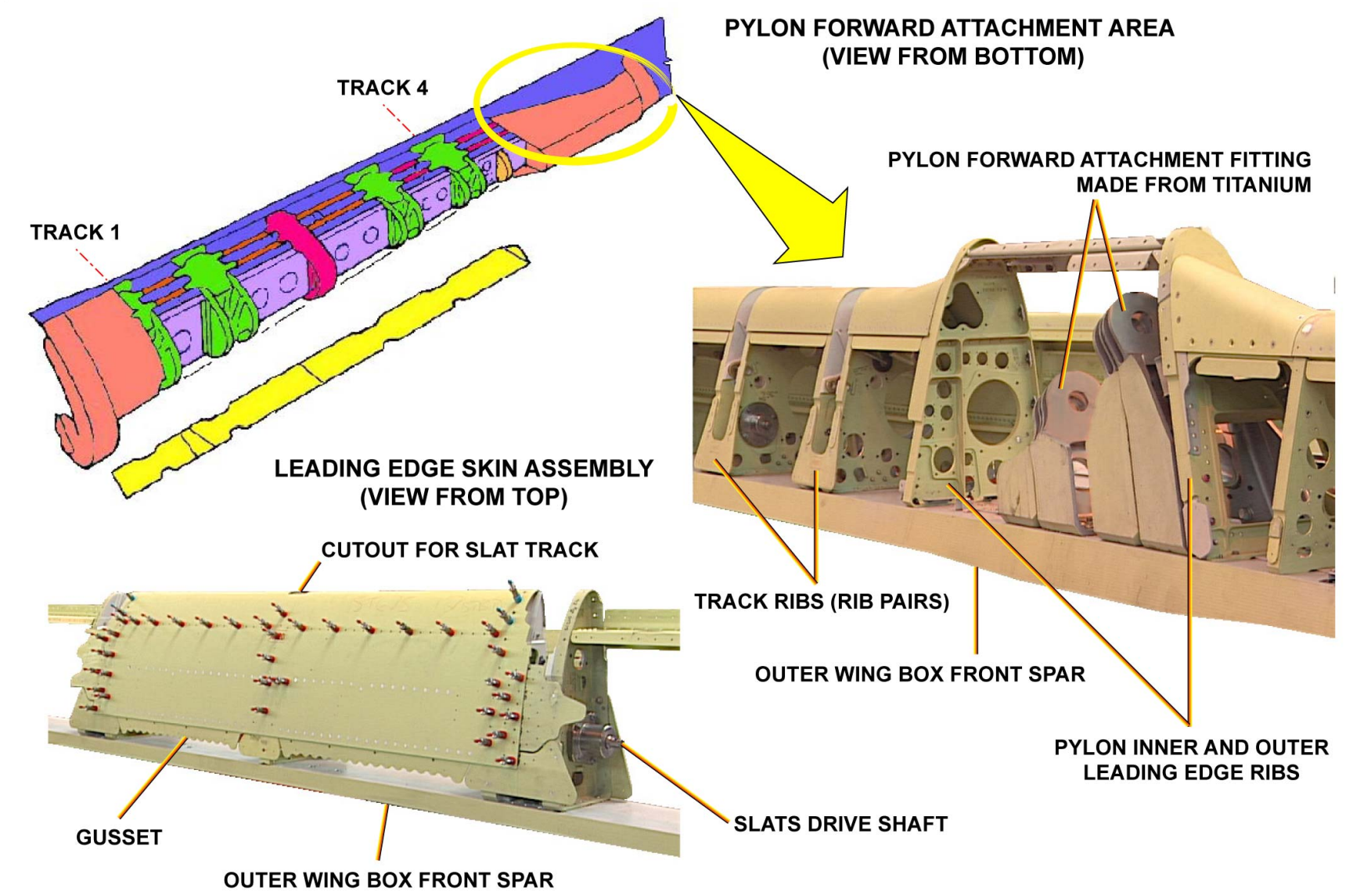
WINGS D/O (3)

FIXED LEADING EDGE (continued)

STRUCTURE LAYOUT (2/2)

Two pylon ribs are installed on each side of the engine pylon. These ribs hold the pylon shroud panels.

UGB13131 - U7ST0M0 - UM51D6000000001



FIXED LEADING EDGE - STRUCTURE LAYOUT (2/2)

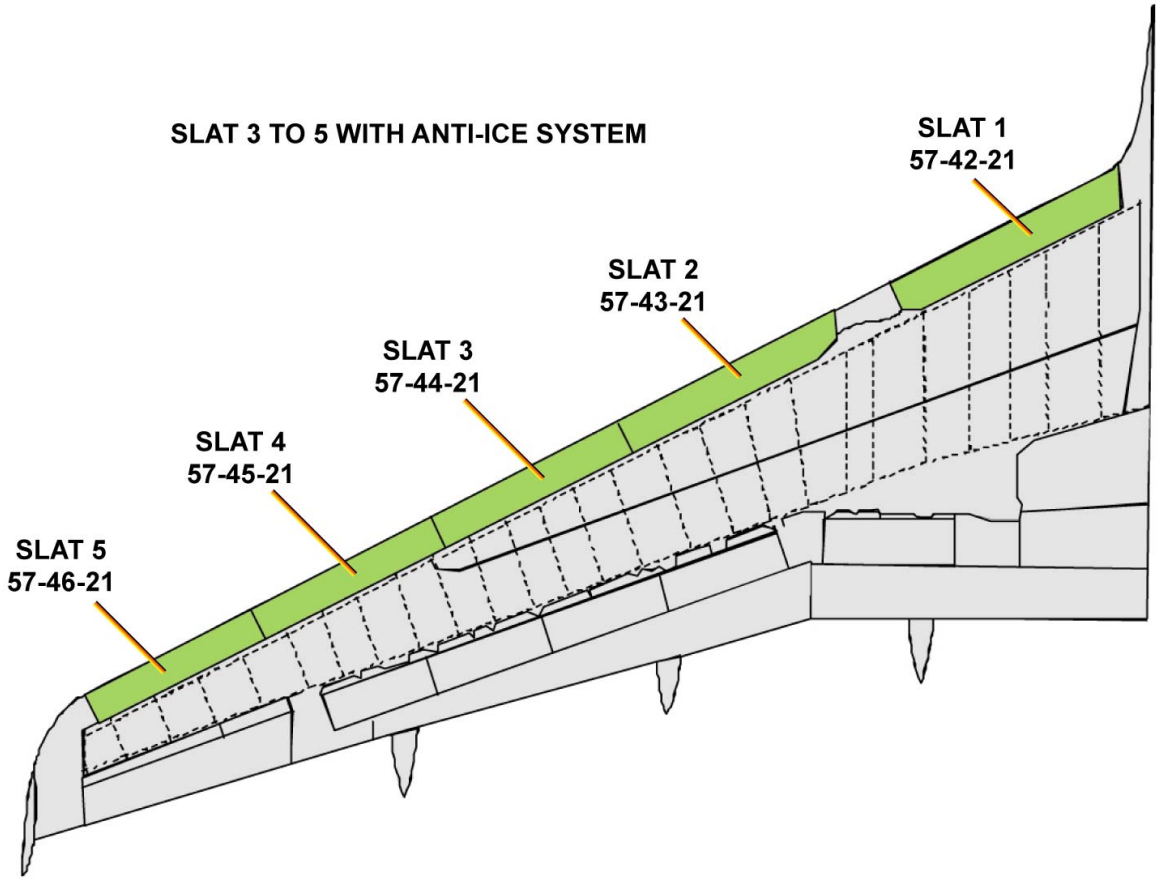
WINGS D/O (3)

SLATS

GENERAL ARRANGEMENT

The wing leading edge is fitted of five slats, which make the movable part of the wing leading edge.

UGB13131 - U7ST0M0 - UM51D6000000001



SLATS - GENERAL ARRANGEMENT

WINGS D/O (3)

SLATS (continued)

STRUCTURE LAYOUT (1/2)

Each slat has:
- a front spar or the stringers (girders),
- a rear spar,
- a girder
- ribs,
- top and bottom skin panels,
- a trailing edge assembly.

Slat 1 is supported by 4 tracks, two of them being driven (track 2 and 3).

Slats 2 to 5 are supported by two tracks, both being driven.

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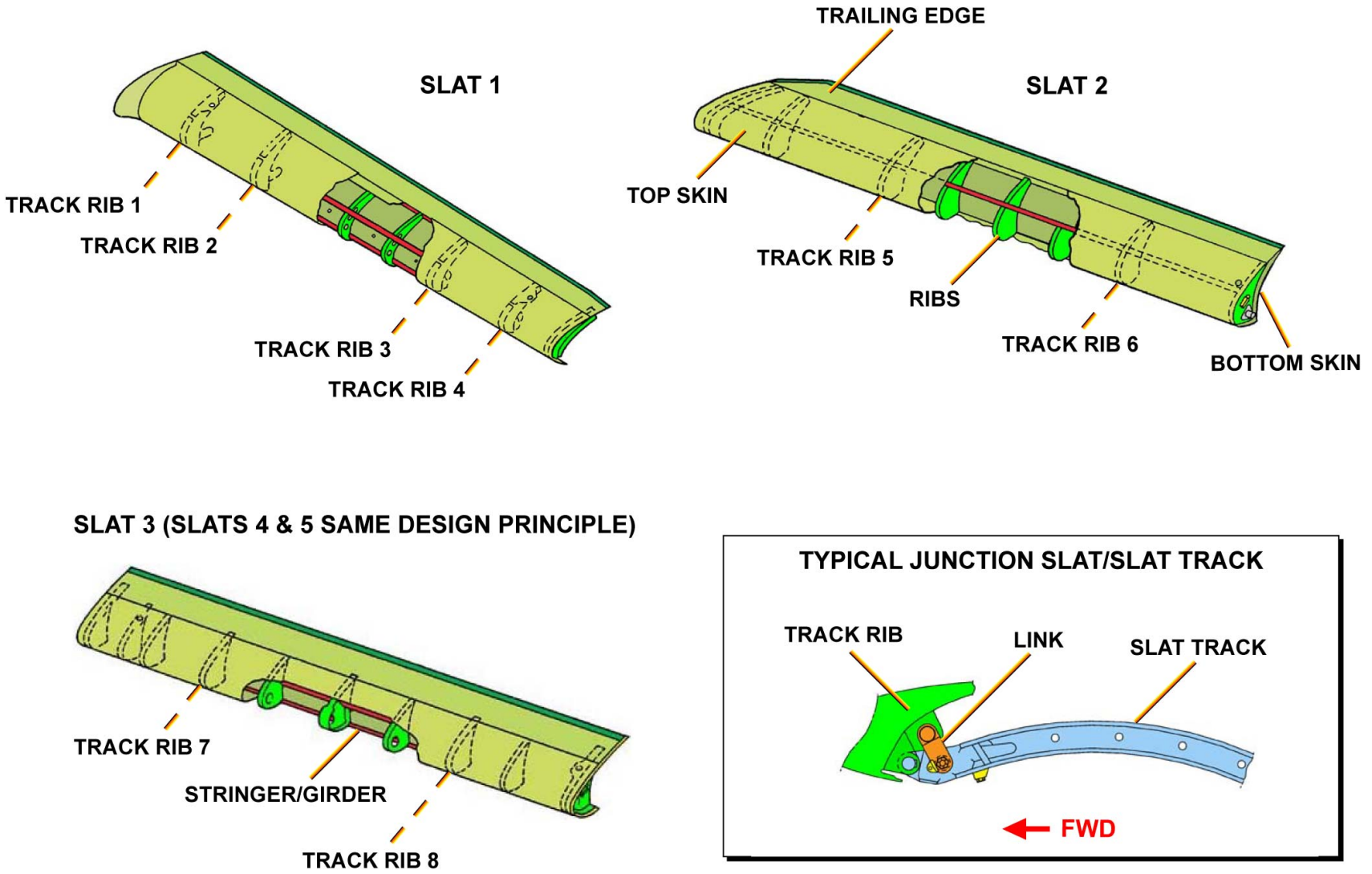


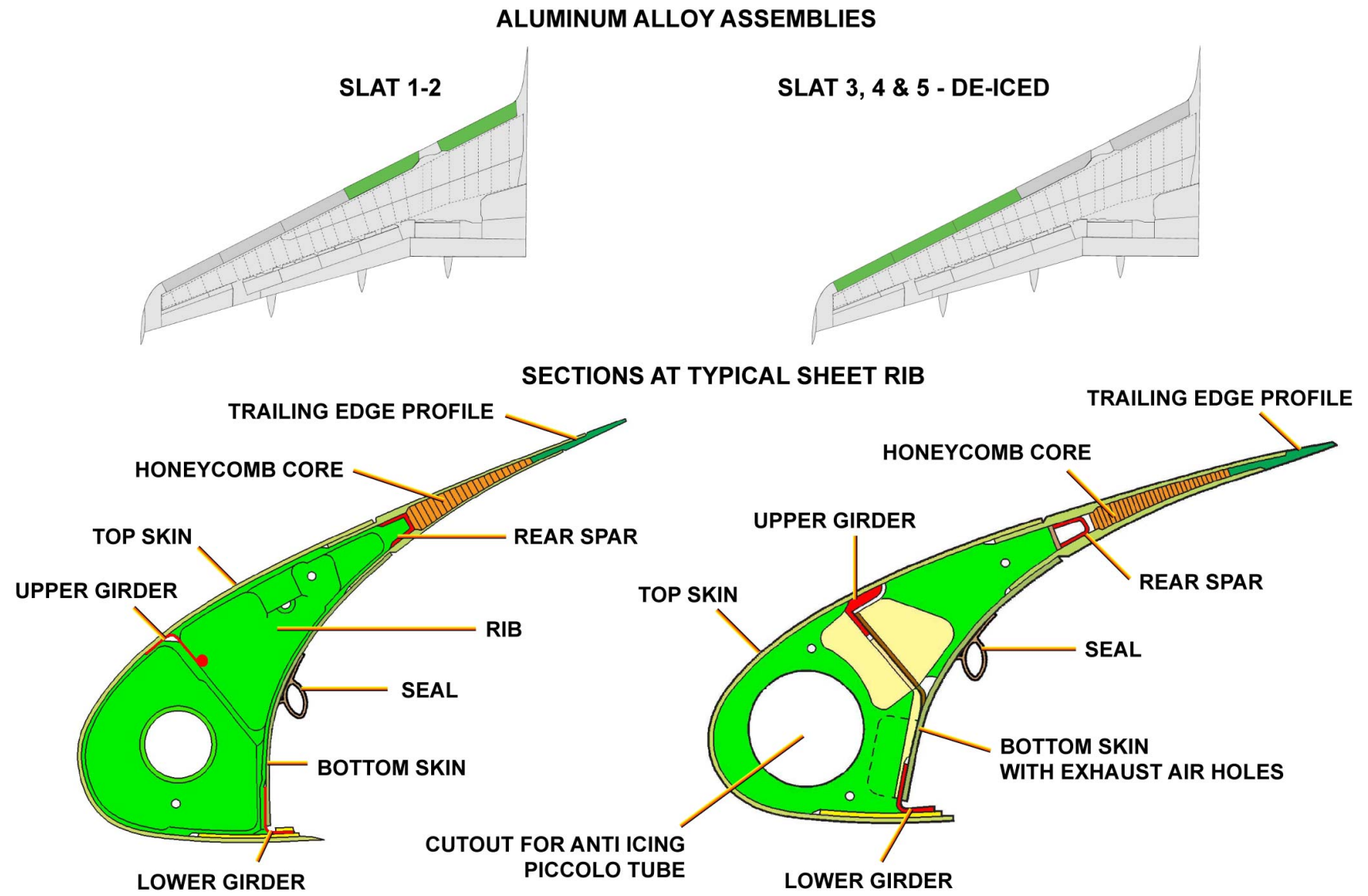
SLATS - STRUCTURE LAYOUT (1/2)

WINGS D/O (3)

SLATS (continued)

STRUCTURE LAYOUT (2/2)

When the slats are in retracted position, seals prevent airflow between the slat and the wing.
Slats 3 to 5 are de-iced; the hot air comes from the bleed air system and is supplied to these slats through a telescopic duct (not shown) and piccolo tubes installed in the leading edges of the slats.



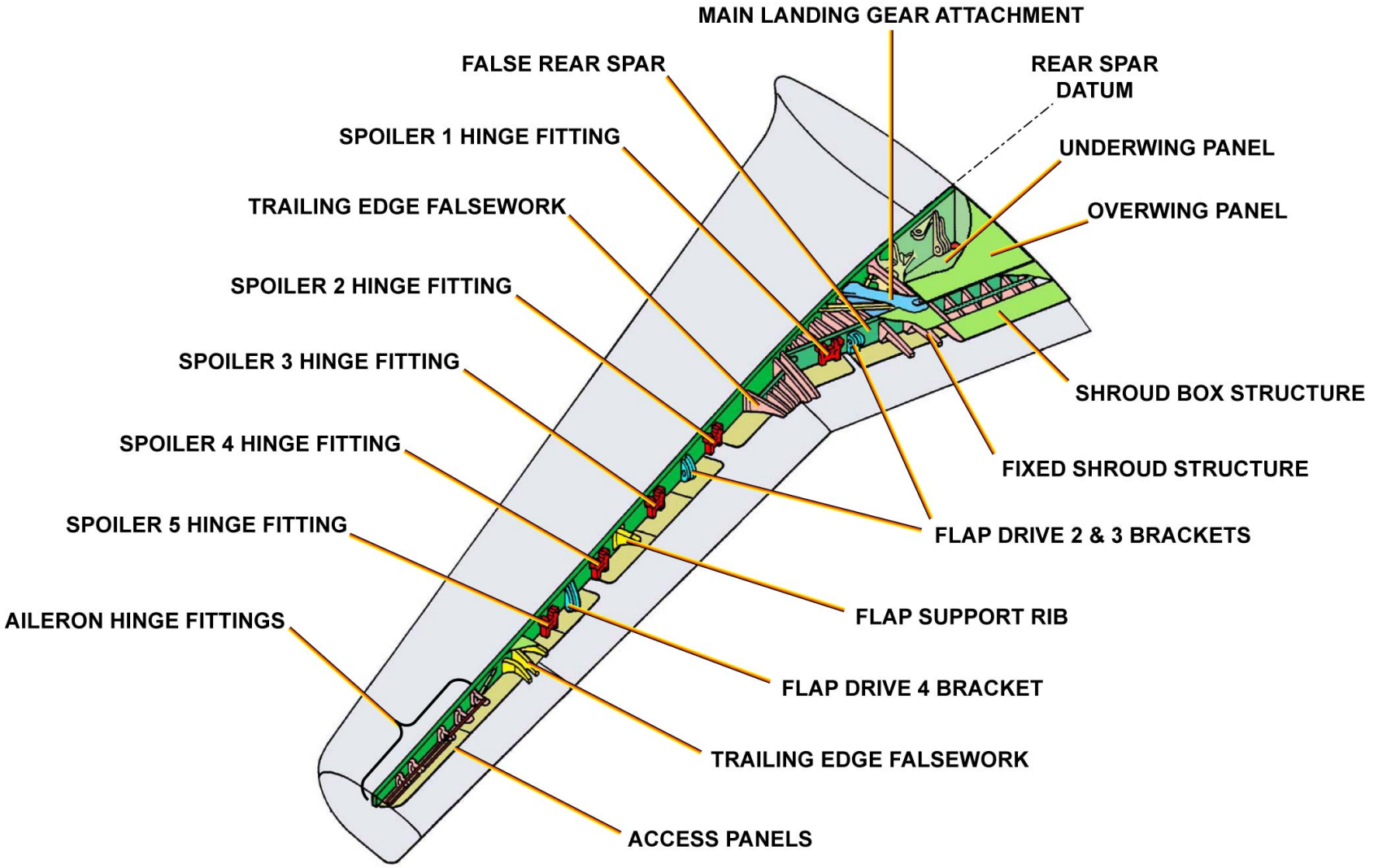
SLATS - STRUCTURE LAYOUT (2/2)

WINGS D/O (3)

FIXED TRAILING EDGE

STRUCTURE LAYOUT

The fixed trailing edge is located aft of the wing rear spar.
Its structure has:
- an overwing panel and an under wing panel,
- a shroud box and a fixed shroud,
- a false rear spar,
- a main landing gear attachment,
- structures support for the trailing edge control surfaces,
- access panels.



FIXED TRAILING EDGE - STRUCTURE LAYOUT

WINGS D/O (3)

FIXED TRAILING EDGE (continued)

STRUCTURE LAYOUT (CONT'D)

This page deals with the fixed trailing edge inner structure.

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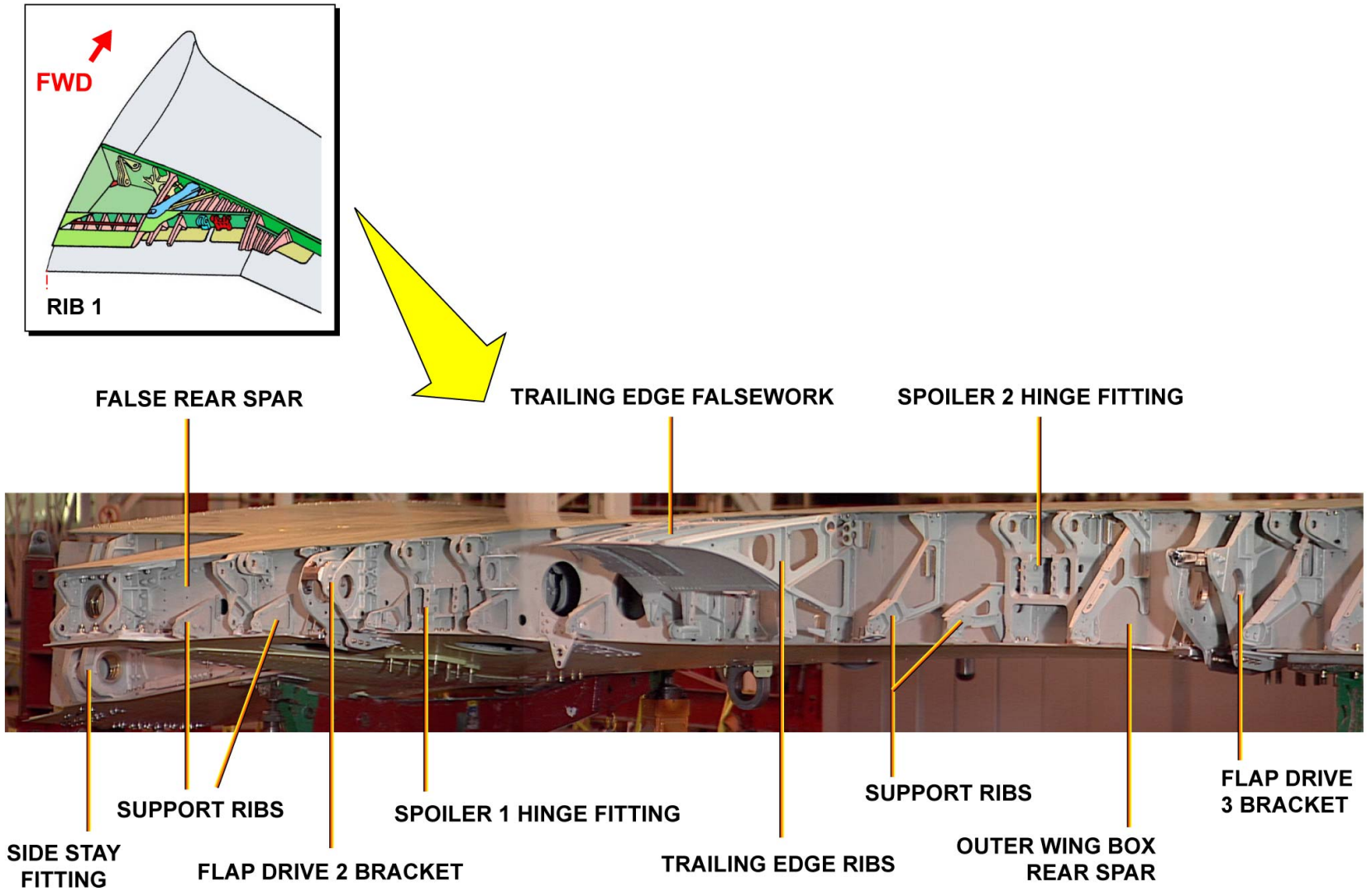

FIXED TRAILING EDGE - STRUCTURE LAYOUT (CONT'D)

WINGS D/O (3)

TRAILING EDGE DEVICES

GENERAL ARRANGEMENT

The trailing edge devices are:
- two flaps,
- one aileron,
- five spoilers.

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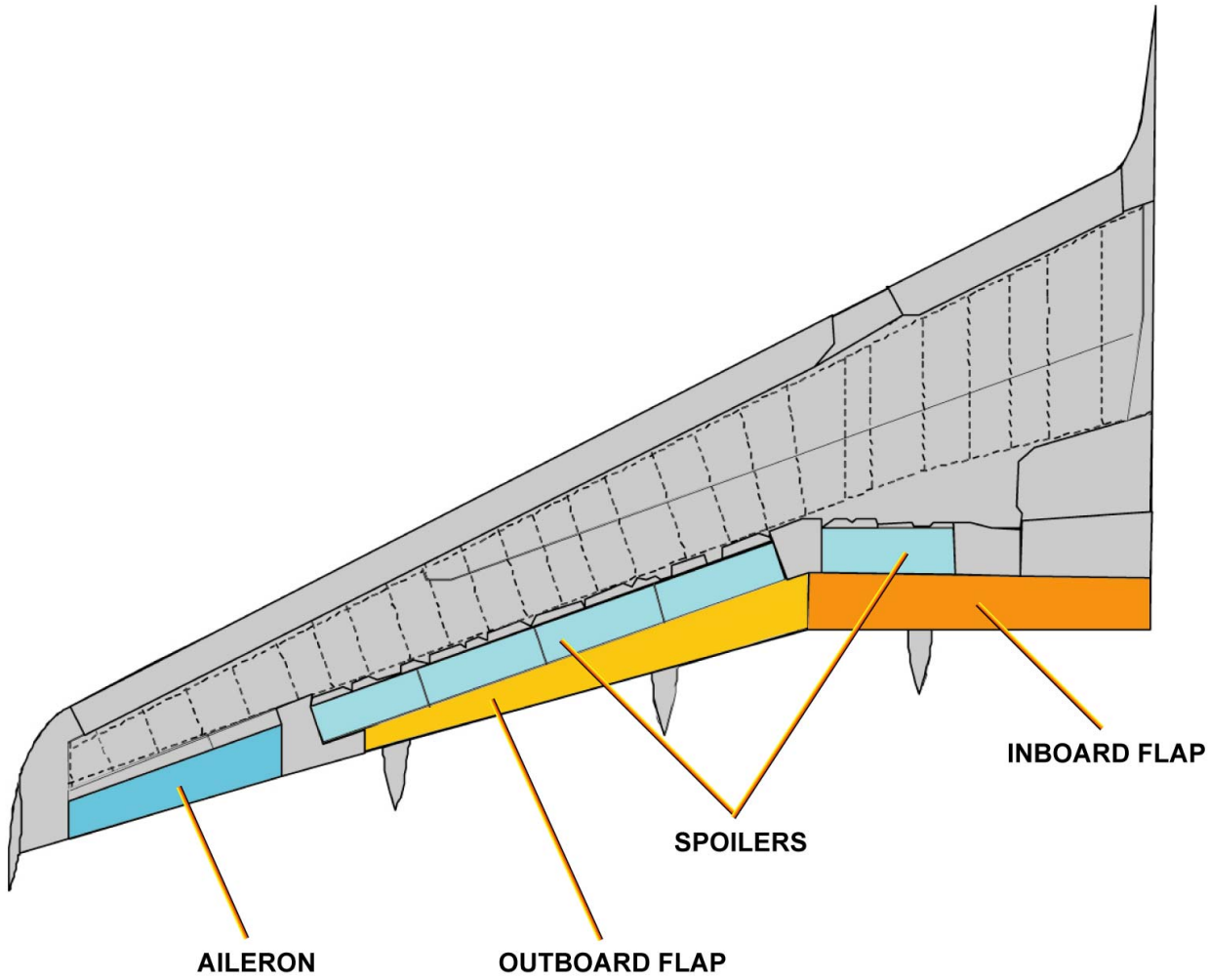


TRAILING EDGE DEVICES - GENERAL ARRANGEMENT

WINGS D/O (3)

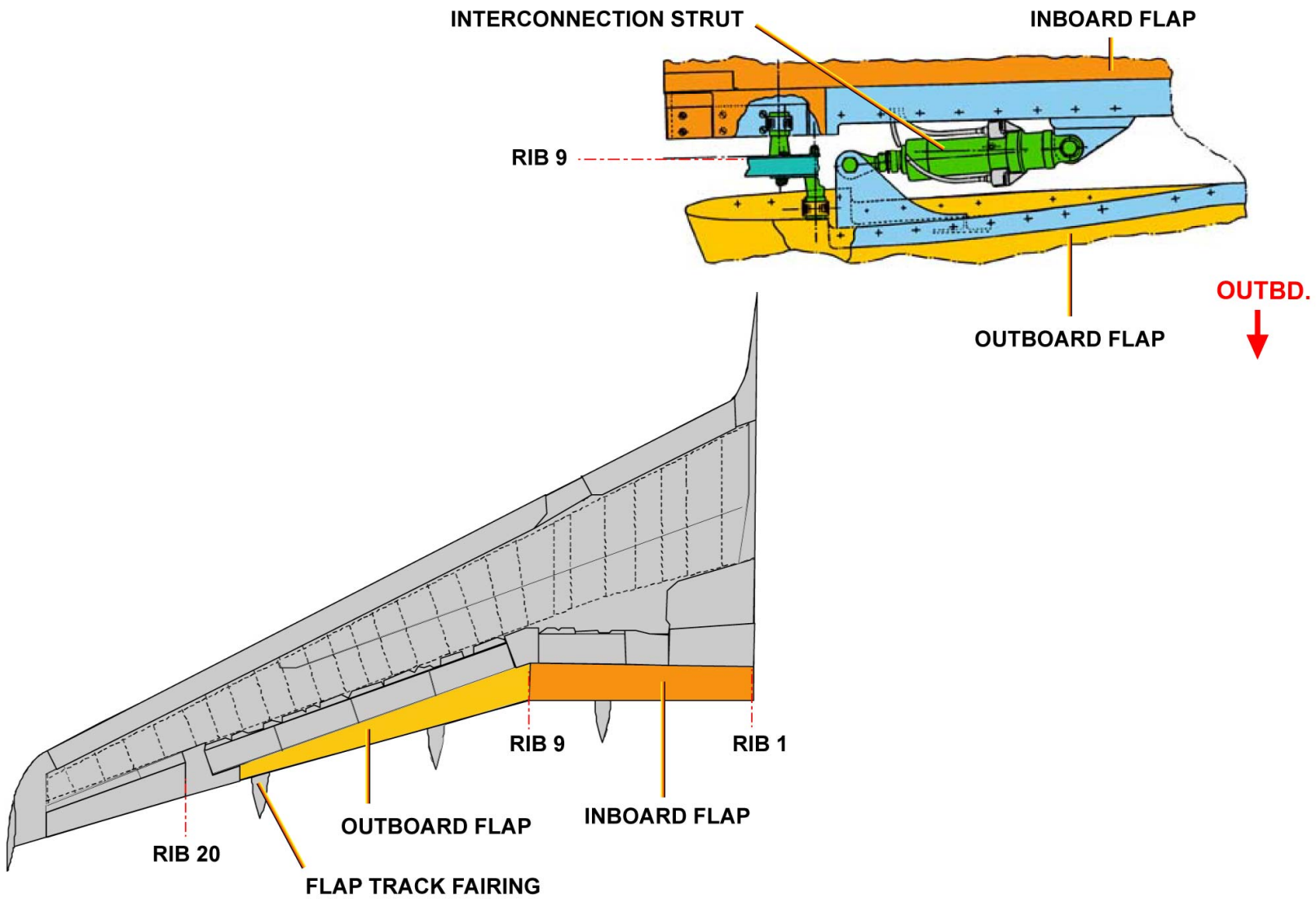
TRAILING EDGE DEVICES (continued)

FLAPS GENERAL ARRANGEMENT

Two flaps are installed on the TE of the outer wing. The inboard flap is installed between Rib 1 and Rib 9 and the outboard flap is installed between Ribs 9 and 20.

The flaps are connected to each other through an interconnection strut. In case of a drive station failure, this device carries the loads, which result in such failure.

UGB13131 - U7ST0M0 - UM51D6000000001



TRAILING EDGE DEVICES - FLAPS GENERAL ARRANGEMENT

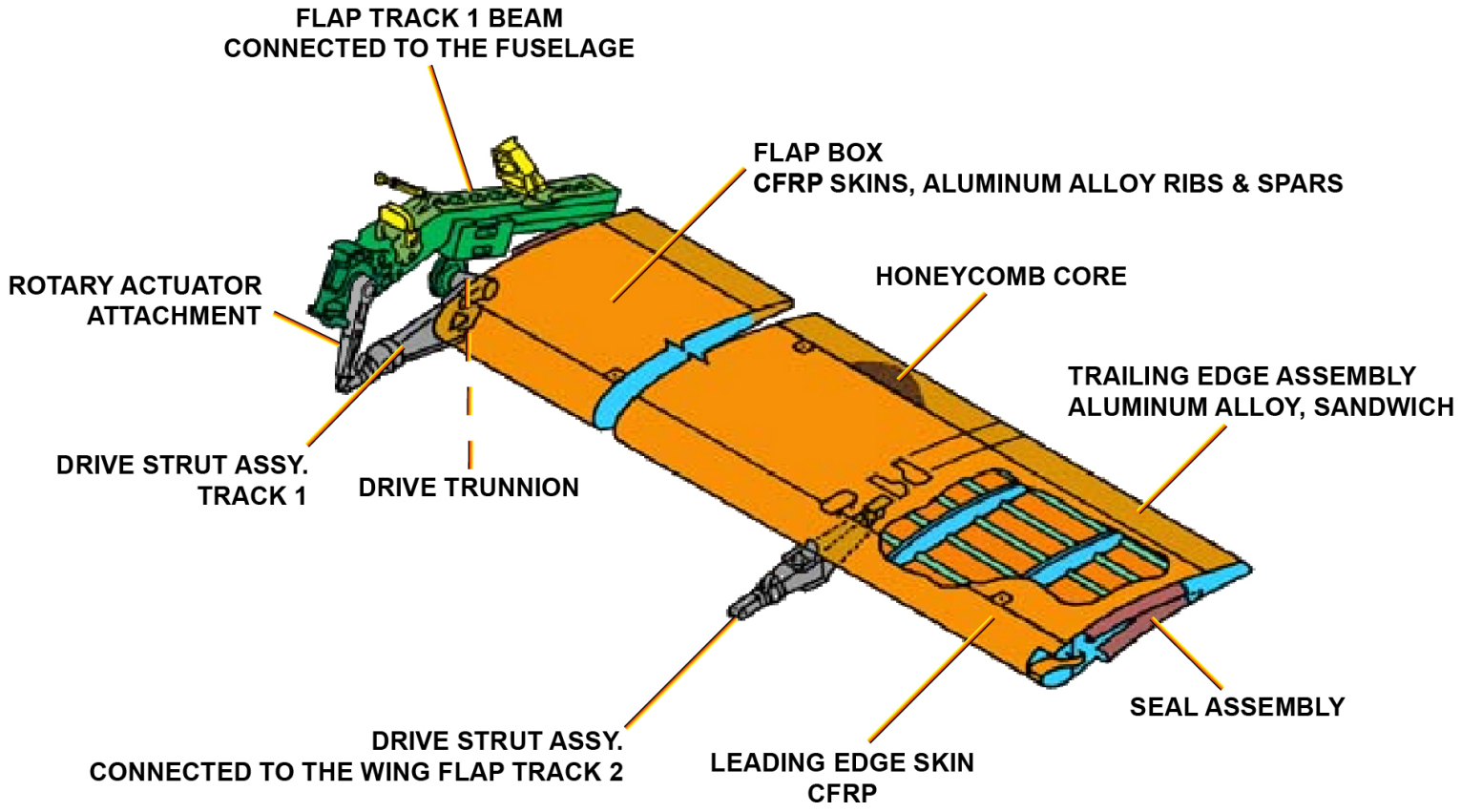
WINGS D/O (3)

TRAILING EDGE DEVICES (continued)

INBOARD FLAP STRUCTURE - A318-A319-A320

The inboard flap is supported and driven by a fuselage track and carriage at track 1 and a wing track carriage at track 2.
The inboard flap has:
- a leading edge with CFRP skin,
- a flap box with:
- skin panels and integrated stringers made of CFRP,
- track ribs and end ribs, made of aluminum alloy,
- other ribs made of aluminum alloy on the A318 and A319, and made of CFRP or aluminum alloy on the A320,
- spars made of aluminum alloy on the A318 and A319, and made of CFRP or aluminum alloy on the A320.
- a trailing edge made in an aluminum alloy sandwich construction.

A rubbing strip (not shown) made of stainless steel is bonded onto the outer surface of the top skin.



CFRP : Carbon Fiber Reinforced Plastic

STAINLESS STEEL RUBBING STRIP ON TOP SKIN NOT SHOWN

TRAILING EDGE DEVICES - INBOARD FLAP STRUCTURE - A318-A319-A320

WINGS D/O (3)

TRAILING EDGE DEVICES (continued)

OUTBOARD FLAP STRUCTURE - A318-A319-A320

The outboard flap is supported and driven by two wing tracks and carriages (tracks 3 and 4).
The outboard flap has:
- a leading edge with CFRP skin,
- a flap box with:
- skin panels with integrated stringers and spars made of CFRP,
- track ribs and end ribs made of aluminum alloy,
- other ribs made of CFRP.
- a trailing edge of aluminum alloy sandwich construction.

A rubbing strip (not shown) made of stainless steel is bonded onto the outer surface of the top skin.

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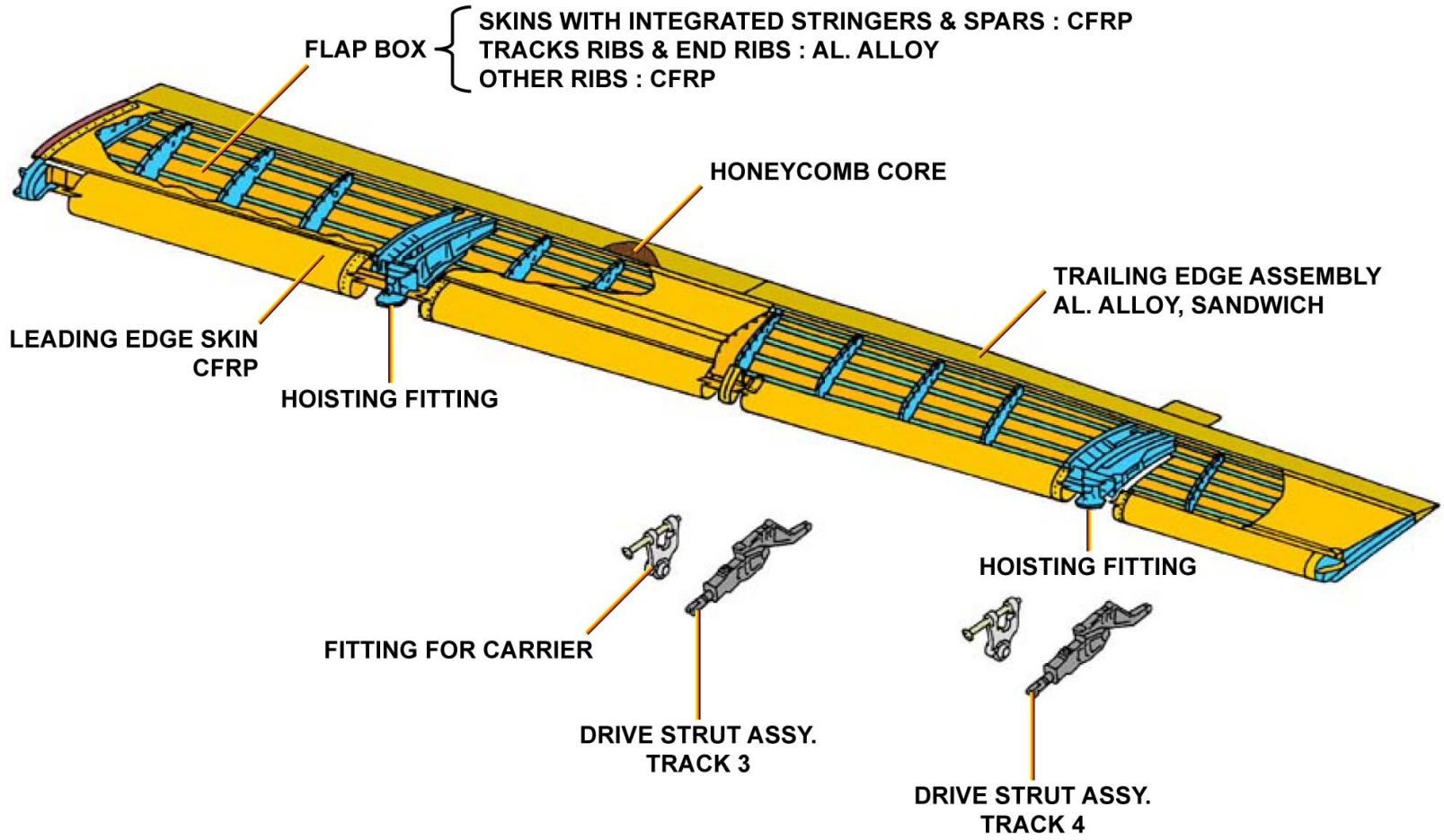

CFRP : Carbon Fiber Reinforced Plastic

STAINLESS STEEL RUBBING STRIP ON TOP SKIN NOT SHOWN

TRAILING EDGE DEVICES - OUTBOARD FLAP STRUCTURE - A318-A319-A320

WINGS D/O (3)

TRAILING EDGE DEVICES (continued)

A321 FLAPS STRUCTURE

The A321 flaps are fowler flaps with a tab on the trailing edge.
The inboard flap has:
- a leading edge and a flap box made of aluminum alloy,
- a trailing edge made in an aluminum alloy sandwich construction.

The outboard flap has:
- a leading edge with CFRP skin,
- a flap box with:
- skin panels and integrated stringers made of CFRP,
- spars made of CFRP,
- track end ribs made of aluminum alloy,
- other ribs made of CFRP.

The tab is made of honeycomb core with a skin made of aluminum sheet metal.
The tab is operated by a linkage system.

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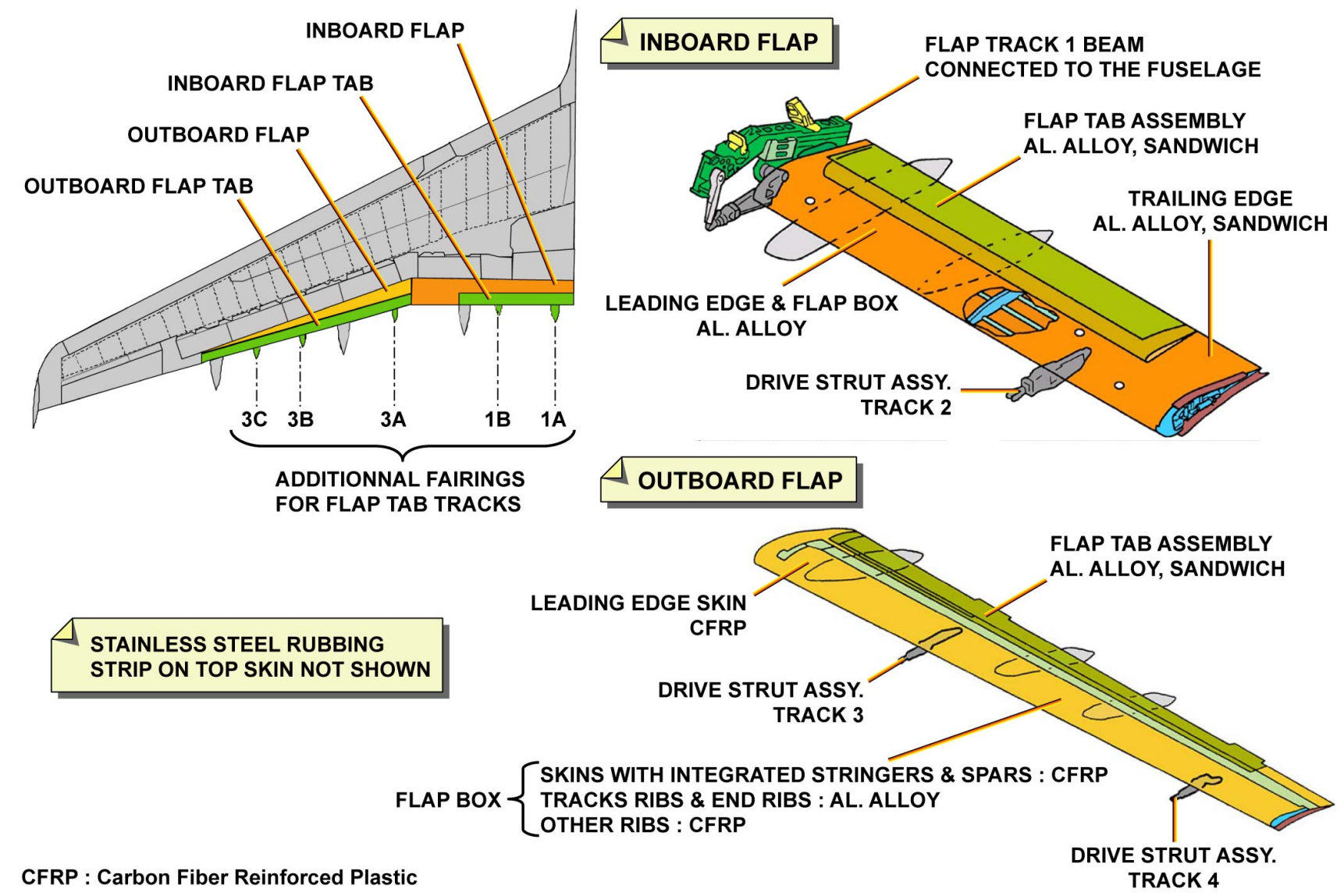

TRAILING EDGE DEVICES - A321 FLAPS STRUCTURE

WINGS D/O (3)

TRAILING EDGE DEVICES (continued)

SPOILERS GENERAL ARRANGEMENT

There are five spoilers on the upper surface of the wing trailing edge.
Spoiler 1 is connected to the false rear spar, inboard of the kink position.
Spoilers 2 thru 5 are connected to the middle and outer sections of the rear spar, outboard of the kink position.
A rubbing strip is attached to the trailing edge of spoilers (1 & 2 only).
It prevents damage to spoilers when flaps are retracted.

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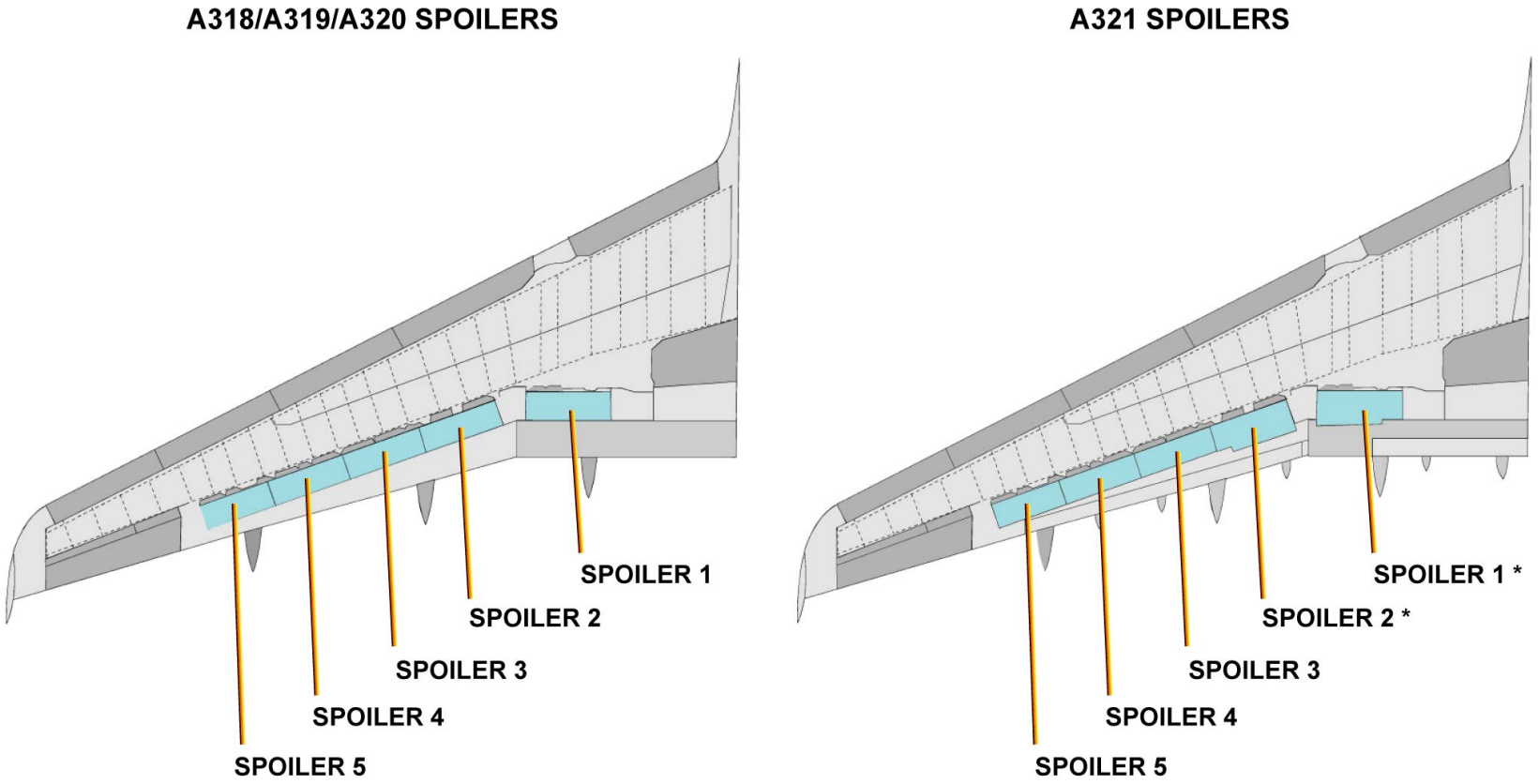

TRAILING EDGE DEVICES - SPOILERS GENERAL ARRANGEMENT

WINGS D/O (3)

TRAILING EDGE DEVICES (continued)

SPOILERS STRUCTURE LAYOUT

Spoilers are a wedge-shaped structure.
The top and bottom skins, the sides and the trailing edge profile of the spoilers are made in CFRP sandwich construction.
The spoiler hinges fittings and the actuator attachment fittings are made of aluminum alloy.

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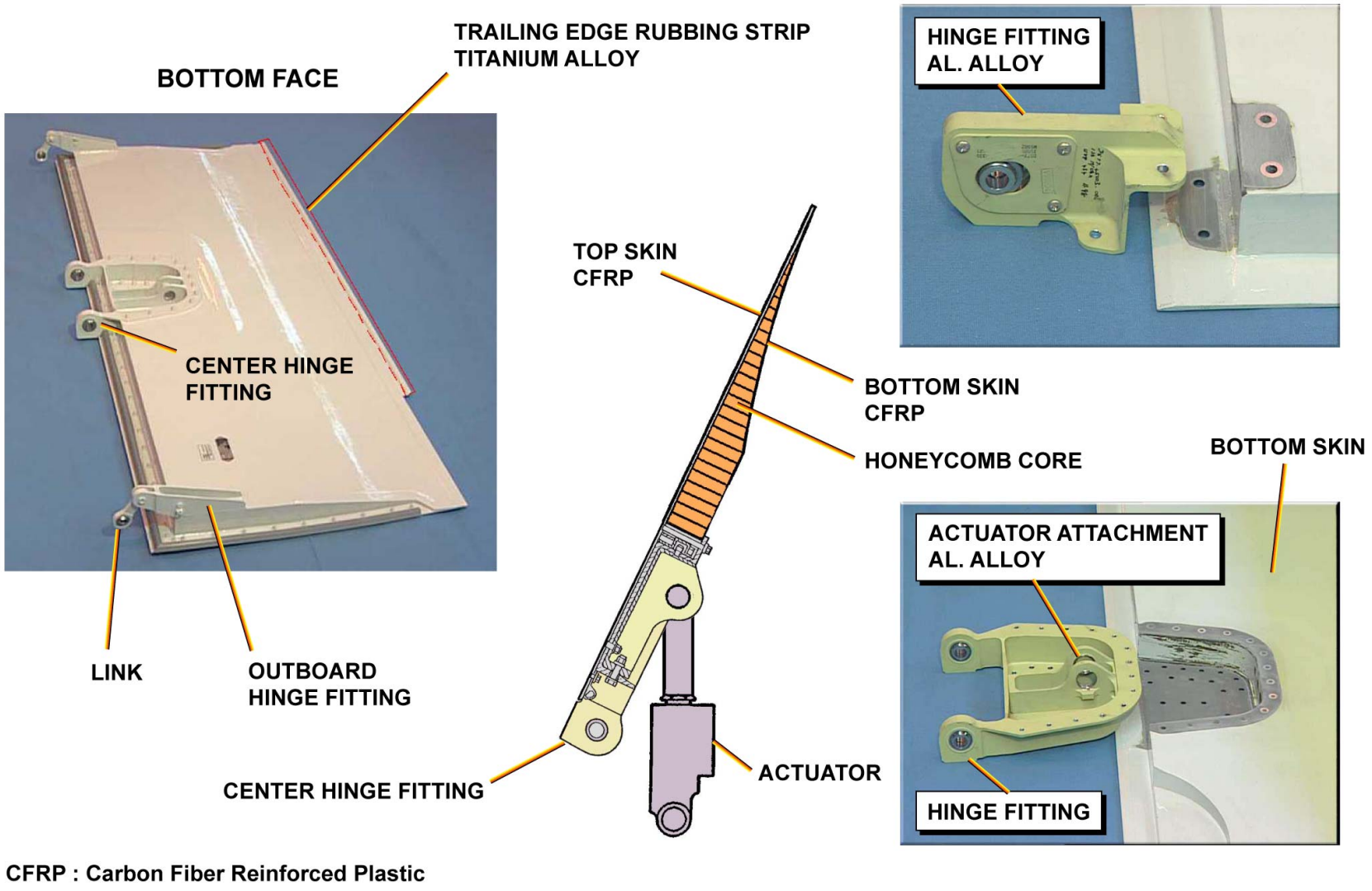

TRAILING EDGE DEVICES - SPOILERS STRUCTURE LAYOUT

WINGS D/O (3)

TRAILING EDGE DEVICES (continued)

AILERON STRUCTURE LAYOUT

The aileron is located outboard of the outer flap and is connected to the wing box rear spar between Ribs 22 and 27.
It is manufactured using CFRP skin (bonded to a honeycomb core in the center area), spar and ribs.
The aileron hinge fittings and the actuator attachment fittings are made of aluminum alloy.

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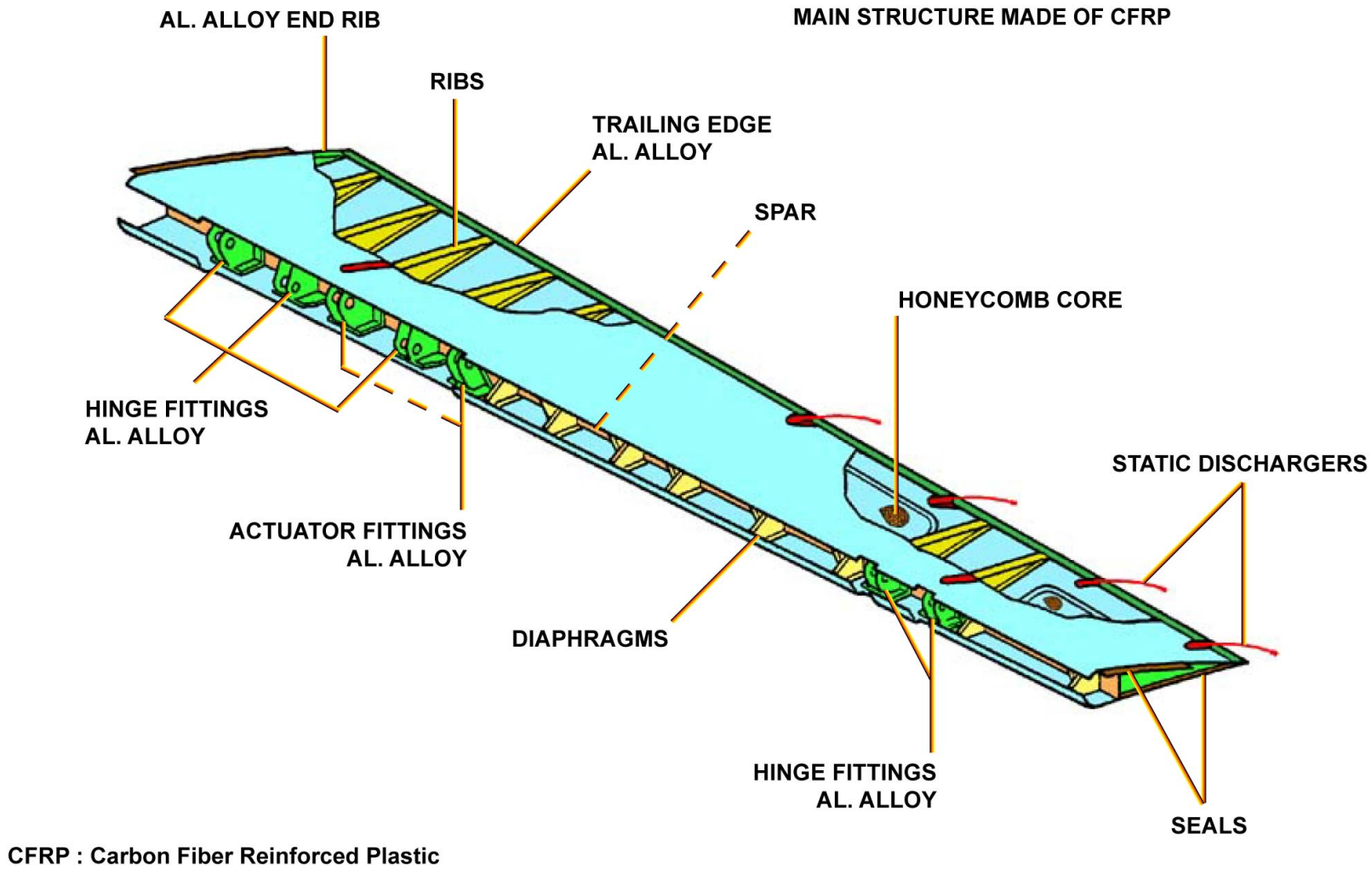


TRAILING EDGE DEVICES - AILERON STRUCTURE LAYOUT

SRM D/O (3)

GENERAL

The structure repair manual is a non-customized document, accessible from AirN@v Repair.
There is a dedicated SRM for:
- A318
- A319
- A320
- A321.

This manual meets the requirements of Air Transport Association of America (ATA) specification 2200 (iSpec 2200), formerly called ATA 100.
The SRM includes descriptive information as well as specific instructions and data to other assessment of structural damage and to do repairs.
For most of the damage/defect discovered on the aircraft structure, the SRM is the first document to use to assess the damage, to identify the affected structure and to determine the subsequent action or repair to make. The SRM also includes the Structural Repair Inspections (SRI) instructions.

UGB13131 - U7ST0M0 - UM51D9000000001

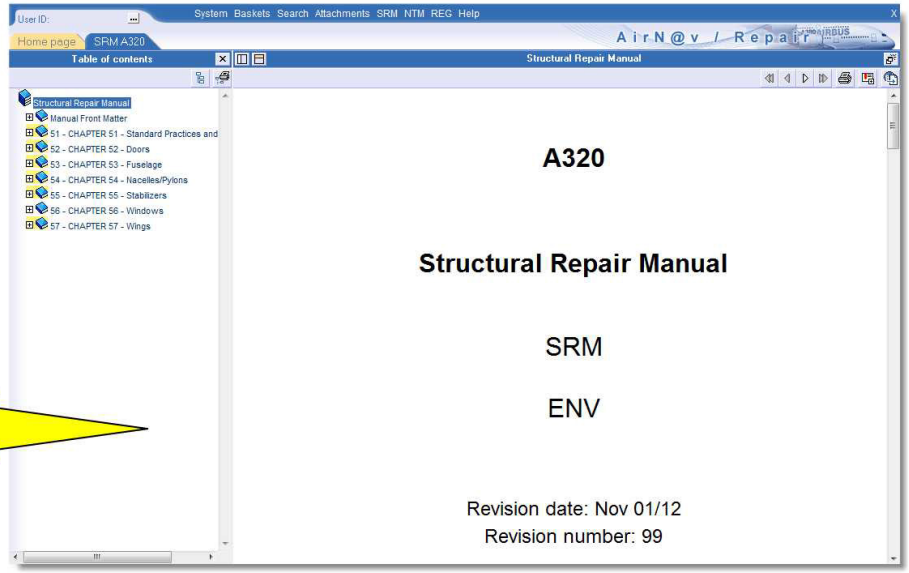
Repair (V1.10.2)
Documents
SRM A318 (Revision number = 38, Revision date = Nov 01/12)
SRM A319 (Revision number = 99, Revision date = Nov 01/12)
SRM A320 (Revision number = 99, Revision date = Nov 01/12)
SRM A321 (Revision number = 99, Revision date = Nov 01/12)
NTM A318/A319/A320/A321 (Revision number = 94, Revision date = Nov 01/12)
REG A318/A319/A320/A321 (Revision number = 01, Revision date = Feb 01/10)
Help
Getting Started
Layout, links & searches

SRM IS PART OF AirN@V REPAIR

NON CUSTOMIZED DOCUMENT

PREPARED IN ACCORDANCE WITH THE AIR TRANSPORT ASSOCIATION (ATA), SPECIFICATION 2200 FORMERLY CALLED ATA 100

MAIN CONTENTS:
- **STRUCTURE PART IDENTIFICATION,**
- **ALLOWABLE DAMAGE LIMITS,**
- **STRUCTURAL REPAIRS,**
- **MATERIAL AND FASTENER INFORMATION,**
- **STRUCTURAL REPAIR INSPECTIONS.**

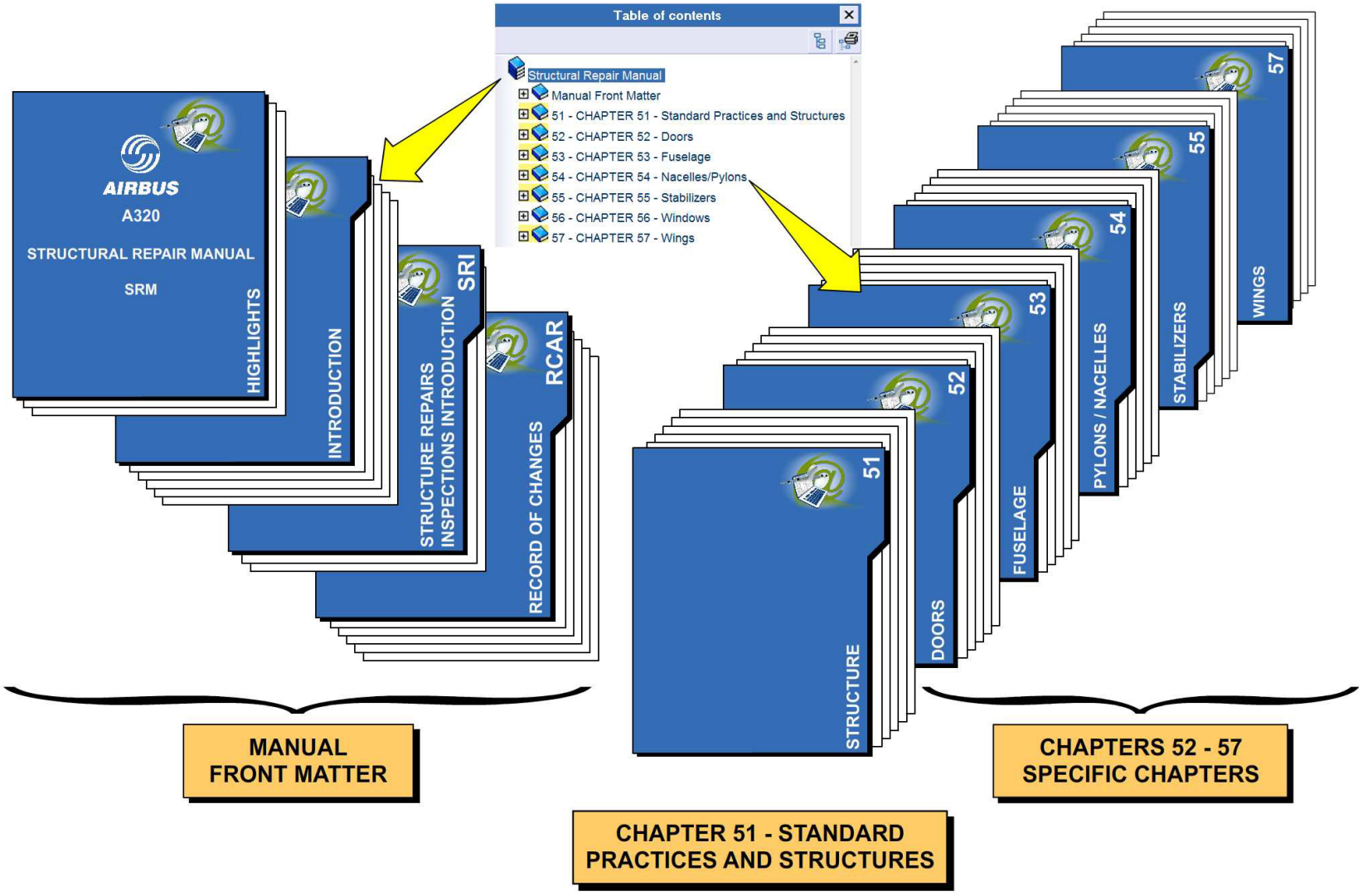

System Baskets Search Attachments SRM NTM REG Help
Home page
SRM A320
Table of contents
Structural Repair Manual
Structural Repair Manual
Manual Front Matter
51 - CHAPTER 51 - Standard Practices and
52 - CHAPTER 52 - Doors
53 - CHAPTER 53 - Fuselage
54 - CHAPTER 54 - Nacelles/Pylons
55 - CHAPTER 55 - Stabilizers
56 - CHAPTER 56 - Windows
57 - CHAPTER 57 - Wings
A320
Structural Repair Manual
SRM
ENV
Revision date: Nov 01/12
Revision number: 99

GENERAL

SRM D/O (3)

MANUAL BREAKDOWN

The SRM breakdown is accessible in the left frame of AirN@v Repair which displays the table of contents. This drop down menu is divided into Manual Front Matter and seven main chapters (From ATA 51 to ATA 57).



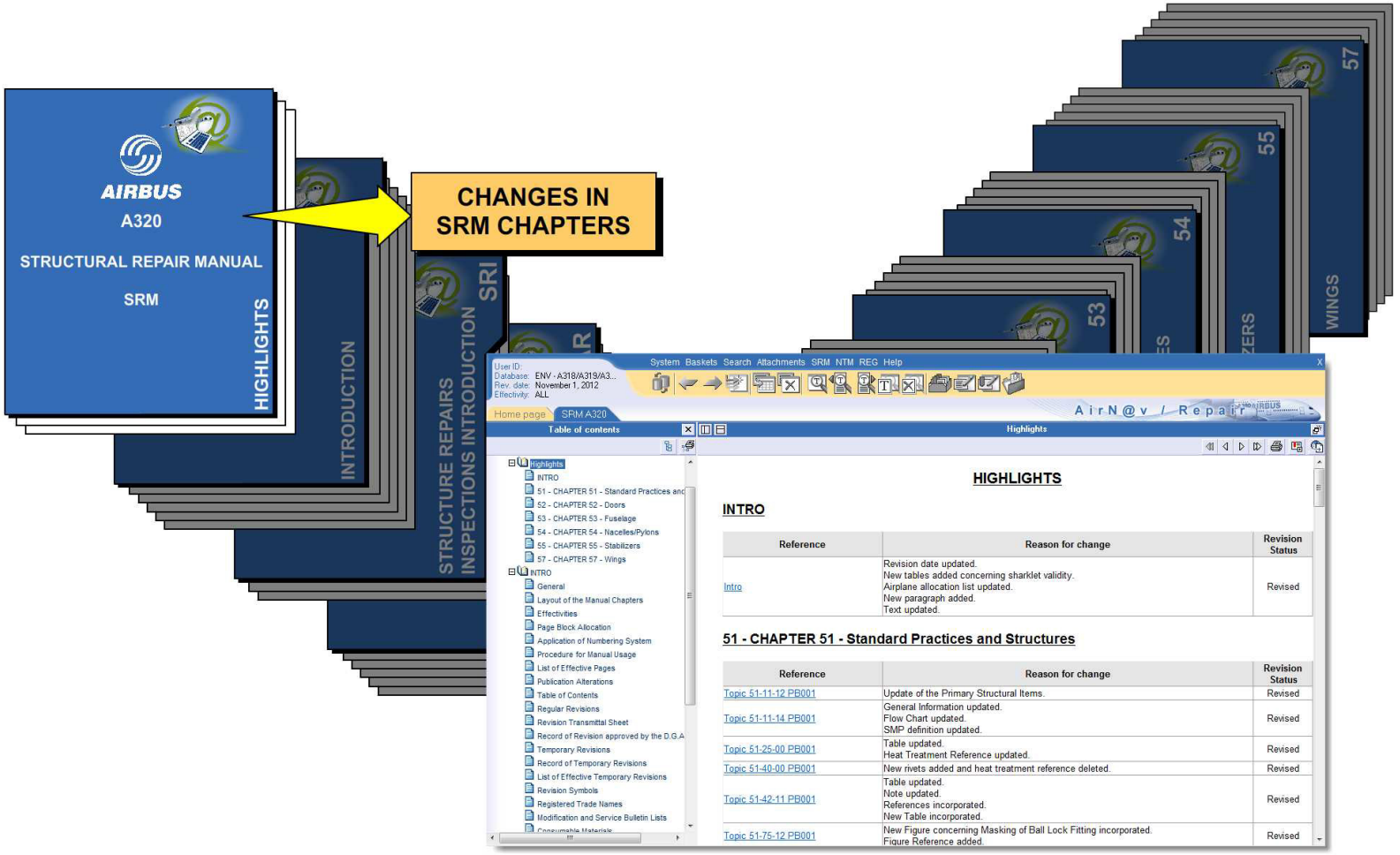
MANUAL BREAKDOWN

SRM D/O (3)

HIGHLIGHTS

The Highlights section provides the revision status and links for each SRM chapter:
- Reference of the modification
- Reason for change
- Revision status.

UGB13131 - U7ST0M0 - UM51D9000000001


AIRBUS
A320
STRUCTURAL REPAIR MANUAL
SRM
HIGHLIGHTS
INTRODUCTION
STRUCTURE REPAIRS
INSPECTIONS INTRODUCTION
SRI
CHANGES IN
SRM CHAPTERS
53
54
55
57
WINGS
Home page
SRM A320
Table of contents
Highlights
HIGHLIGHTS
INTRO
Reference
Reason for change
Revision Status
Intro
Revision date updated.
New tables added concerning sharklet validity.
Airplane allocation list updated.
New paragraph added.
Text updated.
Revised
51 - CHAPTER 51 - Standard Practices and Structures
Topic 51-11-12 PB001
Update of the Primary Structural Items.
Topic 51-11-14 PB001
General Information updated.
Flow Chart updated.
SMP definition updated.
Topic 51-25-00 PB001
Table updated.
Heat Treatment Reference updated.
Topic 51-40-00 PB001
New rivets added and heat treatment reference deleted.
Topic 51-42-11 PB001
Table updated.
Note updated.
References incorporated.
New Table incorporated.
Topic 51-75-12 PB001
New Figure concerning Masking of Ball Lock Fitting incorporated.
Figure Reference added.

HIGHLIGHTS

SRM D/O (3)

INTRODUCTION CHAPTER

The introduction chapter contains all necessary information and explanations for a correct use of the manual. This section also provides airplane information, such as:
- Weight Variant
- Airplane Allocation List.

It also contains the airplane allocation list giving for each Manufacturer Serial Number (MSN), the weight variant at delivery, the aircraft type, etc.
The weight variant given in the Airplane allocation list is not necessarily the actual current status of the aircraft that needs to be confirmed by your engineering department.

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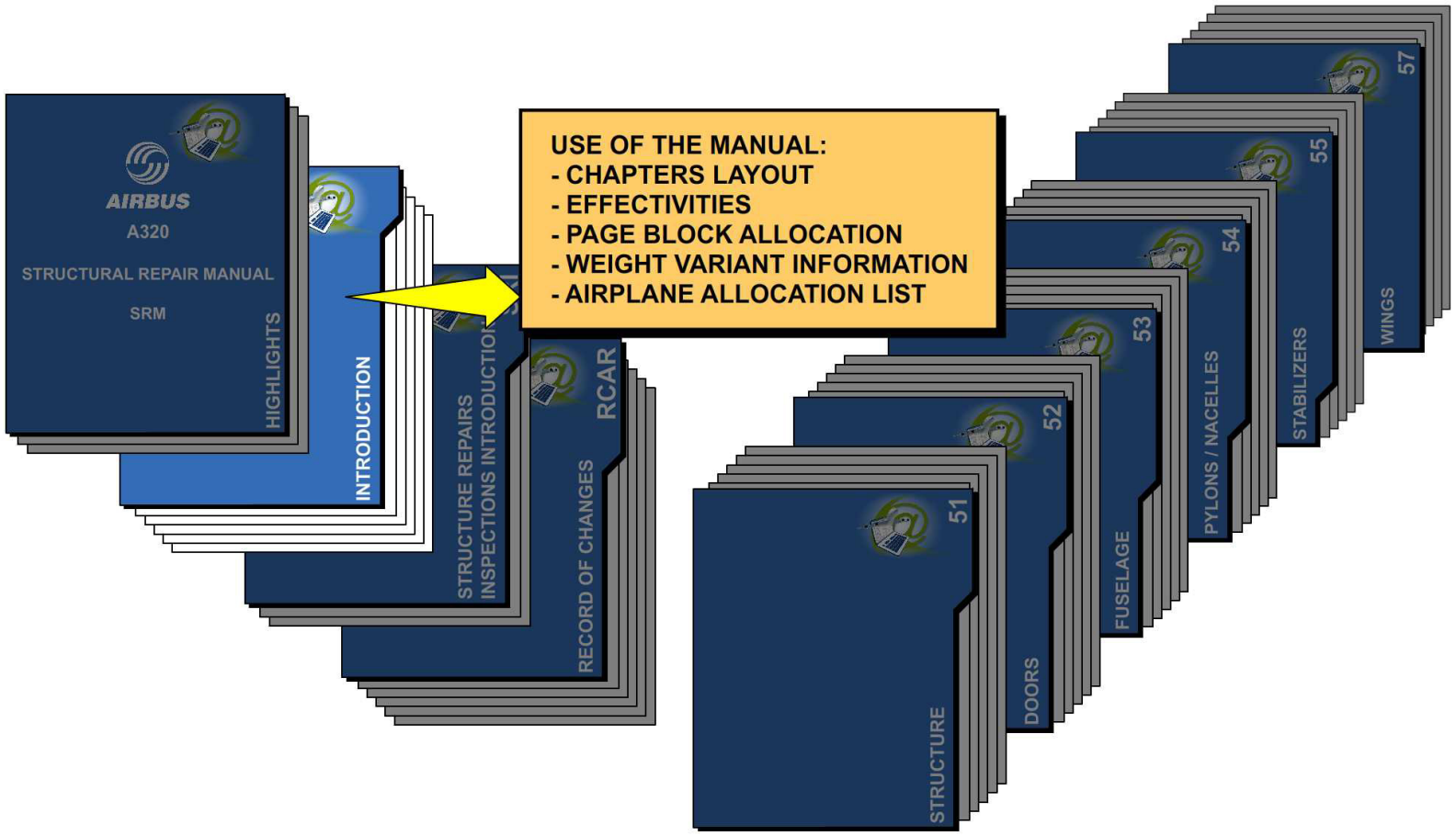
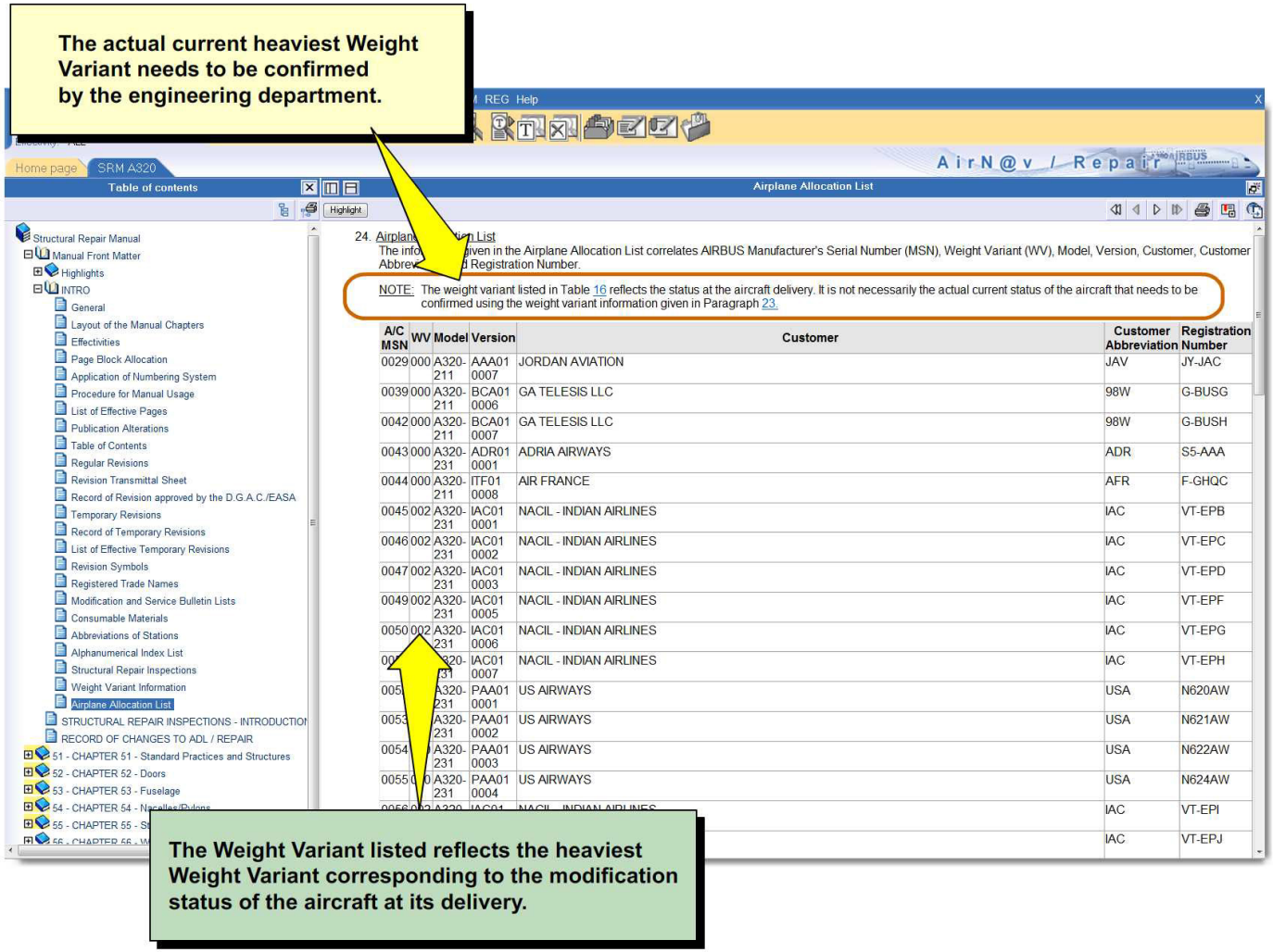


INTRODUCTION CHAPTER


The actual current heaviest Weight Variant needs to be confirmed by the engineering department.
REG Help
Home page
SRM A320
AirN@v / Repair
Table of contents
Airplane Allocation List
Highlight
Structural Repair Manual
Manual Front Matter
Highlights
INTRO
General
Layout of the Manual Chapters
Effectivities
Page Block Allocation
Application of Numbering System
Procedure for Manual Usage
List of Effective Pages
Publication Alterations
Table of Contents
Regular Revisions
Revision Transmittal Sheet
Record of Revision approved by the D.G.A.C./EASA
Temporary Revisions
Record of Temporary Revisions
List of Effective Temporary Revisions
Revision Symbols
Registered Trade Names
Modification and Service Bulletin Lists
Consumable Materials
Abbreviations of Stations
Alphanumerical Index List
Structural Repair Inspections
Weight Variant Information
Airplane Allocation List
STRUCTURAL REPAIR INSPECTIONS - INTRODUCTION
RECORD OF CHANGES TO ADL / REPAIR
51 - CHAPTER 51 - Standard Practices and Structures
52 - CHAPTER 52 - Doors
53 - CHAPTER 53 - Fuselage
24. Airplane Allocation List
The information given in the Airplane Allocation List correlates AIRBUS Manufacturer's Serial Number (MSN), Weight Variant (WV), Model, Version, Customer, Customer Abbreviation and Registration Number.
NOTE: The weight variant listed in Table 16 reflects the status at the aircraft delivery. It is not necessarily the actual current status of the aircraft that needs to be confirmed using the weight variant information given in Paragraph 23.
A/C MSN | WV | Model | Version | Customer | Customer Abbreviation | Registration Number
0029 | 000 | A320-211 | AAA01 0007 | JORDAN AVIATION | JAV | JY-JAC
0039 | 000 | A320-211 | BCA01 0006 | GA TELESIS LLC | 98W | G-BUSG
0042 | 000 | A320-211 | BCA01 0007 | GA TELESIS LLC | 98W | G-BUSH
0043 | 000 | A320-231 | ADR01 0001 | ADRIA AIRWAYS | ADR | S5-AAA
0044 | 000 | A320-211 | ITF01 0008 | AIR FRANCE | AFR | F-GHQC
0045 | 002 | A320-231 | IAC01 0001 | NACIL - INDIAN AIRLINES | IAC | VT-EPB
0046 | 002 | A320-231 | IAC01 0002 | NACIL - INDIAN AIRLINES | IAC | VT-EPC
0047 | 002 | A320-231 | IAC01 0003 | NACIL - INDIAN AIRLINES | IAC | VT-EPD
0049 | 002 | A320-231 | IAC01 0005 | NACIL - INDIAN AIRLINES | IAC | VT-EPF
0050 | 002 | A320-231 | IAC01 0006 | NACIL - INDIAN AIRLINES | IAC | VT-EPG
IAC01 0007 | NACIL - INDIAN AIRLINES | IAC | VT-EPH
PAA01 0001 | US AIRWAYS | USA | N620AW
PAA01 0002 | US AIRWAYS | USA | N621AW
PAA01 0003 | US AIRWAYS | USA | N622AW
PAA01 0004 | US AIRWAYS | USA | N624AW
IAC | VT-EPI
IAC | VT-EPJ
The Weight Variant listed reflects the heaviest Weight Variant corresponding to the modification status of the aircraft at its delivery.

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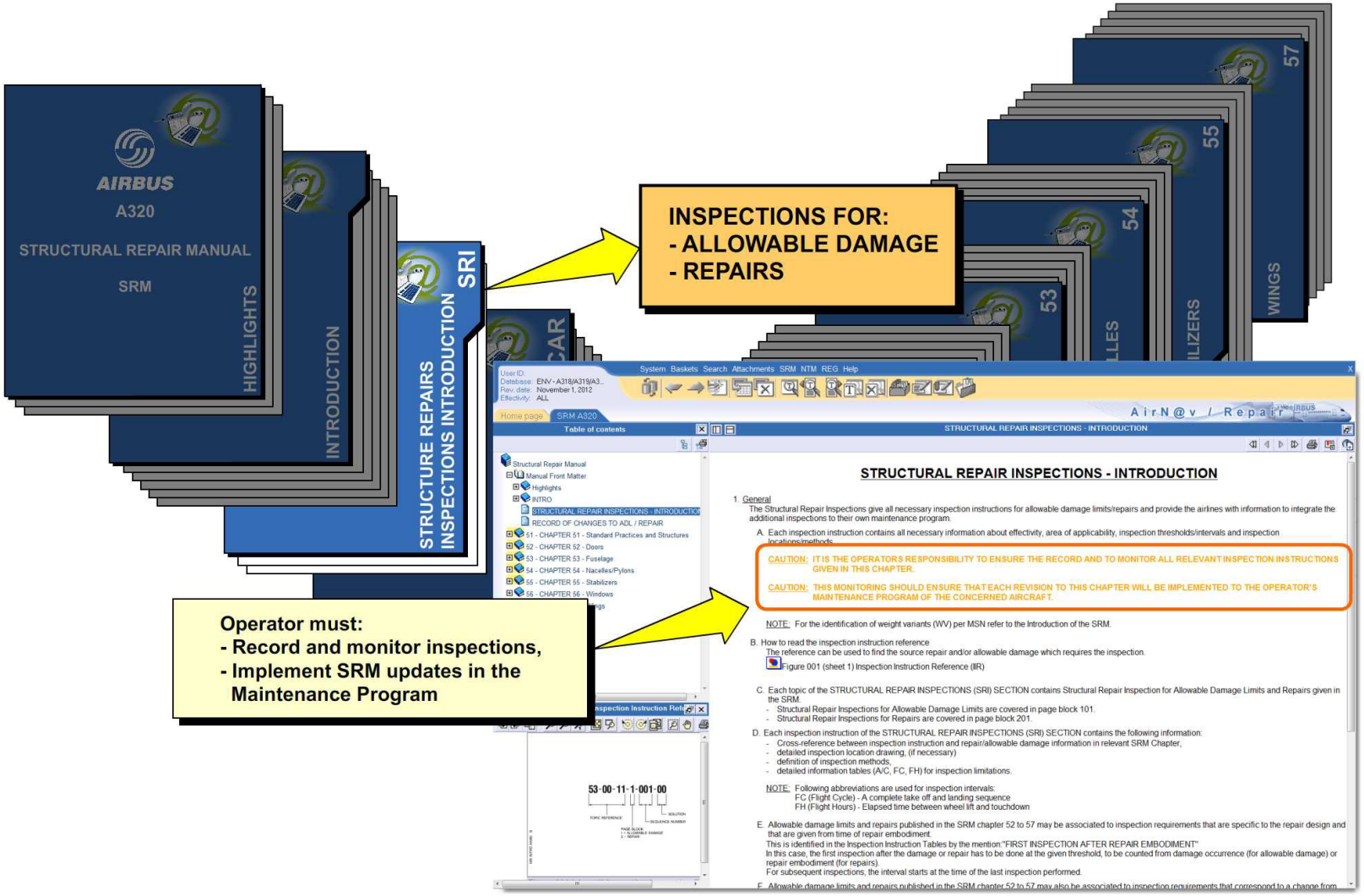
SRM D/O (3)

STRUCTURAL REPAIR INSPECTIONS (SRI)
INTRODUCTION

For permanent repairs with inspection program, inspections are quoted along with the repair.
These inspections are spread in the SRM specific chapters 52 to 57. The SRM gives all necessary inspection instructions for allowable damage limits/repairs and gives to the airline information to integrate the additional inspections to their own maintenance program.

UGB13131 - U7ST0M0 - UM51D9000000001


AIRBUS
A320
STRUCTURAL REPAIR MANUAL
SRM
HIGHLIGHTS
INTRODUCTION
STRUCTURE REPAIRS
INSPECTIONS INTRODUCTION
SRI
INSPECTIONS FOR:
- ALLOWABLE DAMAGE
- REPAIRS
Operator must:
- Record and monitor inspections,
- Implement SRM updates in the Maintenance Program
WINGS
57
55
54
53
STRUCTURAL REPAIR INSPECTIONS - INTRODUCTION
1. General
A. Each inspection instruction contains all necessary information about effectivity, area of applicability, inspection thresholds/intervals and inspection locations/methods.
CAUTION: IT IS THE OPERATOR'S RESPONSIBILITY TO ENSURE THE RECORD AND TO MONITOR ALL RELEVANT INSPECTION INSTRUCTIONS GIVEN IN THIS CHAPTER.
CAUTION: THIS MONITORING SHOULD ENSURE THAT EACH REVISION TO THIS CHAPTER WILL BE IMPLEMENTED TO THE OPERATOR'S MAINTENANCE PROGRAM OF THE CONCERNED AIRCRAFT.
NOTE: For the identification of weight variants (WV) per MSN refer to the Introduction of the SRM.
B. How to read the inspection instruction reference
C. Each topic of the STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION contains Structural Repair Inspection for Allowable Damage Limits and Repairs given in the SRM.
D. Each inspection instruction of the STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION contains the following information:
E. Allowable damage limits and repairs published in the SRM chapter 52 to 57 may be associated to inspection requirements that are specific to the repair design and that are given from time of repair embodiment.

STRUCTURAL REPAIR INSPECTIONS (SRI) INTRODUCTION

SRM D/O (3)

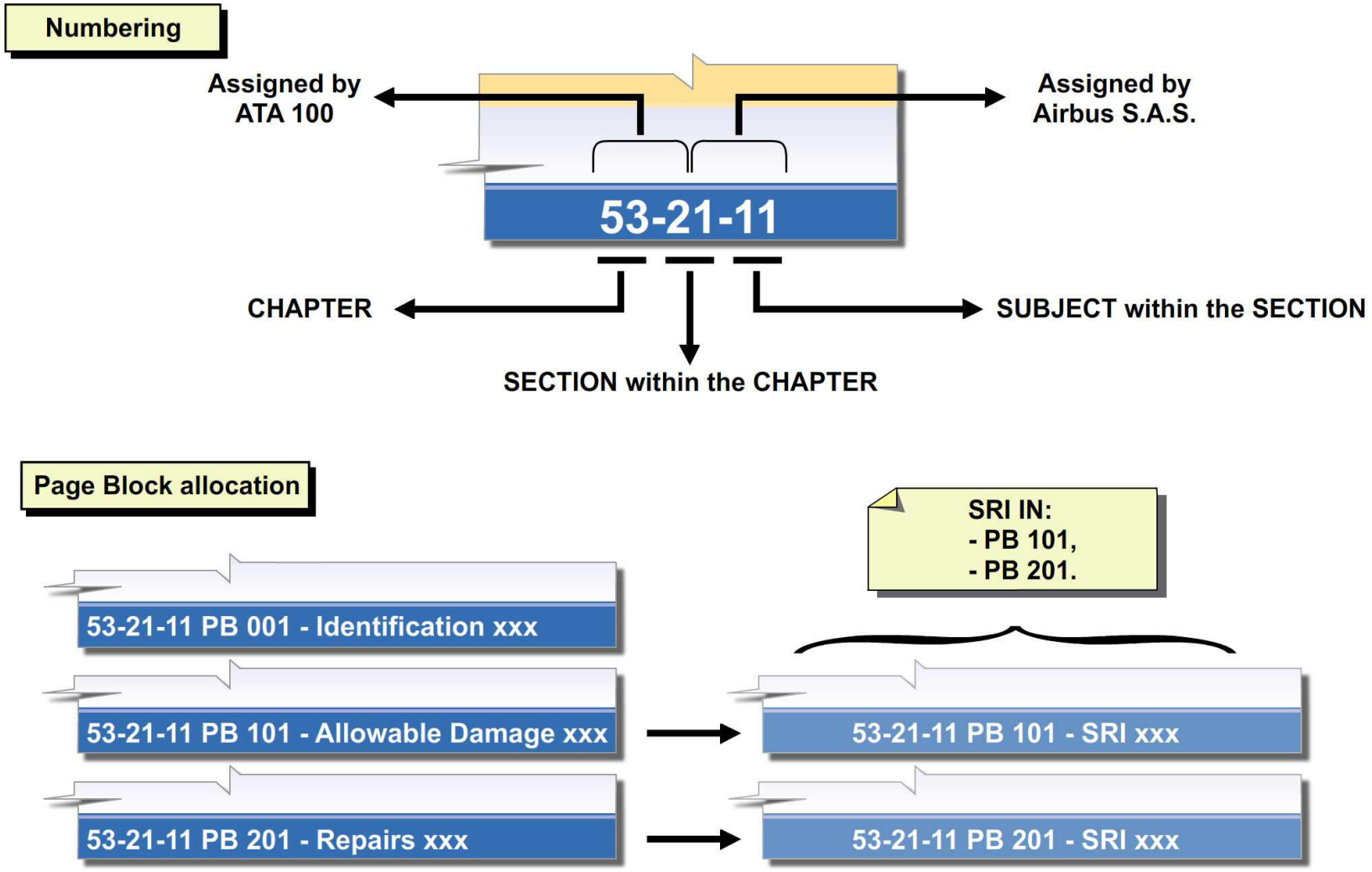
NUMBERING SYSTEM AND PAGE BLOCK ALLOCATION

Each subject, within the SRM, is identified using a three-element numbering system chapter/section and sub-section.
- the first element designates the chapter which is assigned by the ATA iSpec 2200 (formerly called ATA 100),
- the second element designates the section within the chapter.
- the third element identifies the sub-section (subject) within the section and is assigned by Airbus S.A.S.

A standard page block allocation is used for all SRM chapters.
- Page Block (PB) 001 for structure identification,
- Page Block (PB) 101 for allowable damage,
- Page Block (PB) 201 for repairs.

PB 101 and PB 201 can also be used for Structural Repair Inspections (SRI), respectively for:
- Allowable Damage Inspections,
- Repair Inspections.

UGB13131 - U7ST0M0 - UM51D9000000001



NUMBERING SYSTEM AND PAGE BLOCK ALLOCATION

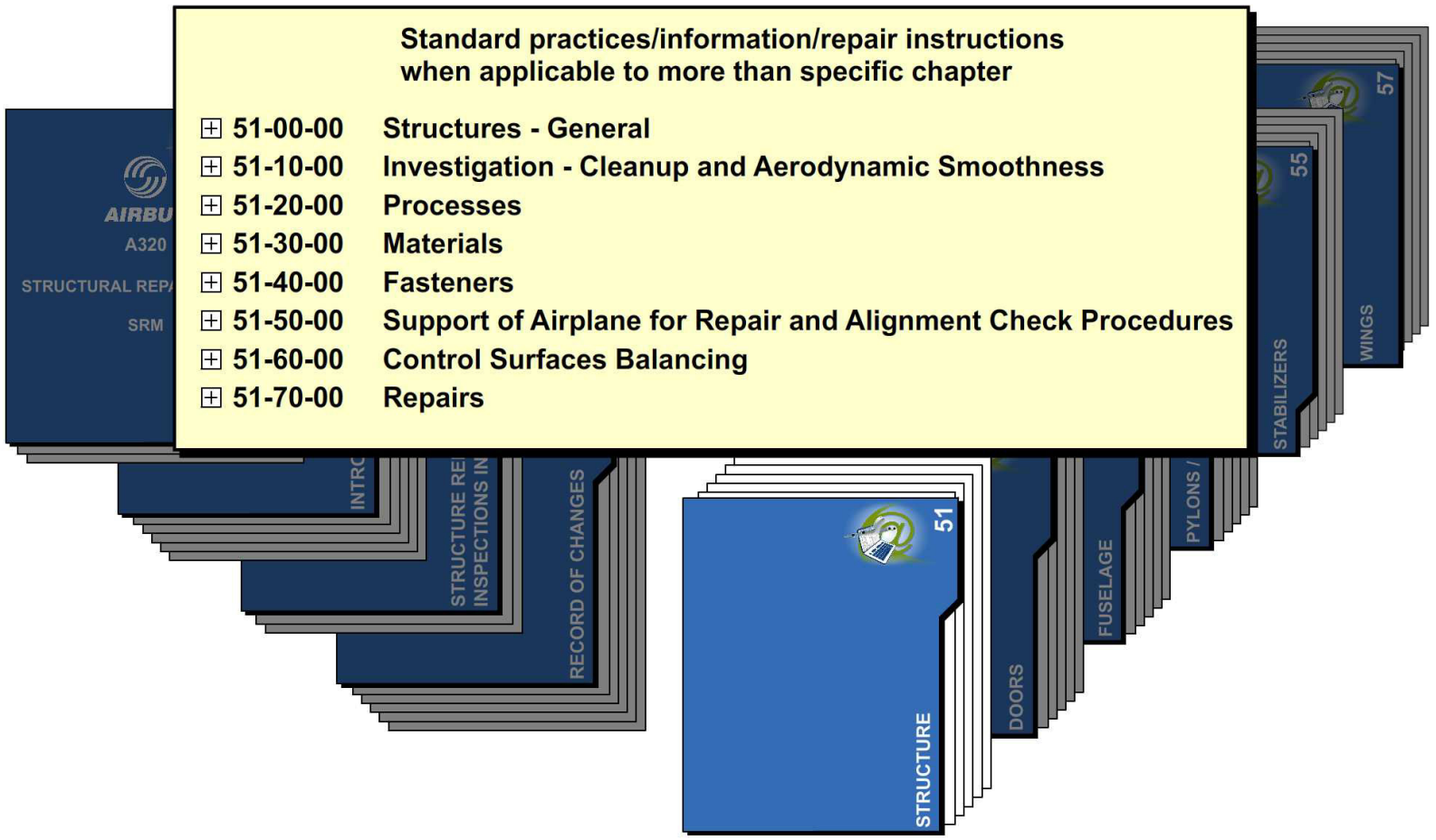
SRM D/O (3)

CHAPTER 51 (STANDARD PRACTICES AND STRUCTURES)

Information about general purposes or applicable to more than one chapter, is included in chapter 51.

NOTE: Note: the entry in the SRM is always the specific chapter 52 to 57, depending on the damage location.

UGB13131 - U7ST0M0 - UM51D9000000001



CHAPTER 51 (STANDARD PRACTICES AND STRUCTURES)

UGB13131 - U7ST0M0 - UM51D9000000001

SRM D/O (3)

CHAPTER 52 TO 57 CONTENTS

LAYOUT

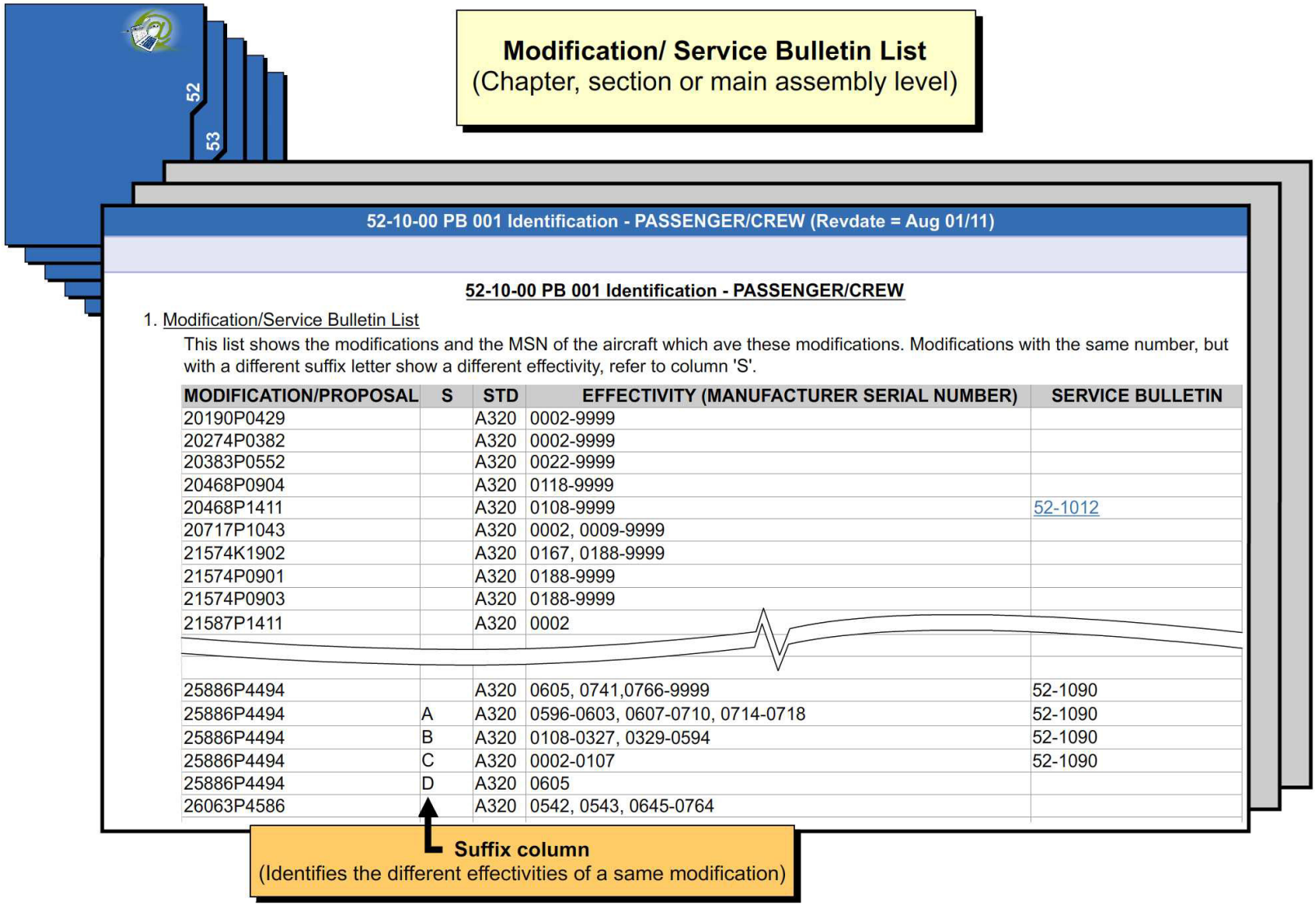
Chapters 52 to 57 are specifically attributed as per ATA 2200 specification.
Chapters 52 to 57 all have the same layout, which conforms to the defined page block allocation system (PB 001 - identification, PB 101 - allowable damage, PB 201- repairs). In addition, a table of contents and a Service Bulletin (SB) list are provided at the beginning of each chapter. Depending on the chapters, the Modification/Service Bulletin list is to be found either at the chapter level, or main section level.

MODIFICATION:SERVICE BULLETIN LIST

Located at:
- section level for chapter 52,
- section level for chapter 53,
- chapter level for chapter 54,
- section level for chapter 55,
- section level for chapter 57, this list is given to the user to determine the effectivity of the modification/SB.

This list gives, for a given modification number, its related suffix, and the effectivity expressed in MSN.

UGB13131 - U7ST0M0 - UM51D9000000001


52
53
Modification/ Service Bulletin List
(Chapter, section or main assembly level)
52-10-00 PB 001 Identification - PASSENGER/CREW (Revdate = Aug 01/11)
52-10-00 PB 001 Identification - PASSENGER/CREW
1. Modification/Service Bulletin List
This list shows the modifications and the MSN of the aircraft which ave these modifications. Modifications with the same number, but with a different suffix letter show a different effectivity, refer to column 'S'.
MODIFICATION/PROPOSAL | S | STD | EFFECTIVITY (MANUFACTURER SERIAL NUMBER) | SERVICE BULLETIN
20190P0429 | | A320 | 0002-9999 |
20274P0382 | | A320 | 0002-9999 |
20383P0552 | | A320 | 0022-9999 |
20468P0904 | | A320 | 0118-9999 |
20468P1411 | | A320 | 0108-9999 | 52-1012
20717P1043 | | A320 | 0002, 0009-9999 |
21574K1902 | | A320 | 0167, 0188-9999 |
21574P0901 | | A320 | 0188-9999 |
21574P0903 | | A320 | 0188-9999 |
21587P1411 | | A320 | 0002 |
25886P4494 | | A320 | 0605, 0741,0766-9999 | 52-1090
25886P4494 | A | A320 | 0596-0603, 0607-0710, 0714-0718 | 52-1090
25886P4494 | B | A320 | 0108-0327, 0329-0594 | 52-1090
25886P4494 | C | A320 | 0002-0107 | 52-1090
25886P4494 | D | A320 | 0605 |
26063P4586 | | A320 | 0542, 0543, 0645-0764 |
Suffix column
(Identifies the different effectivities of a same modification)

CHAPTER 52 TO 57 CONTENTS - LAYOUT & MODIFICATION:SERVICE BULLETIN LIST

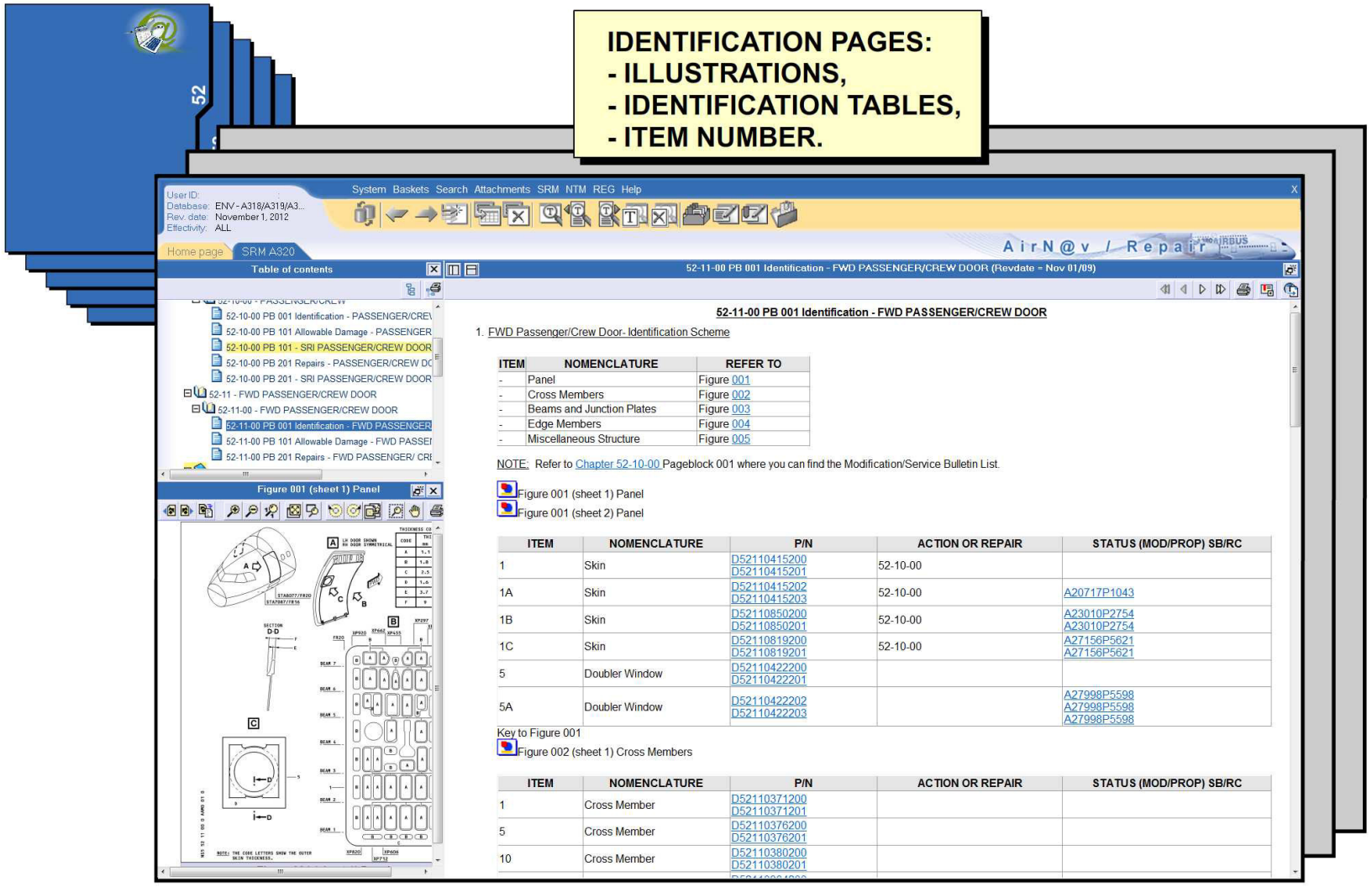
SRM D/O (3)

CHAPTER 52 TO 57 CONTENTS (continued)

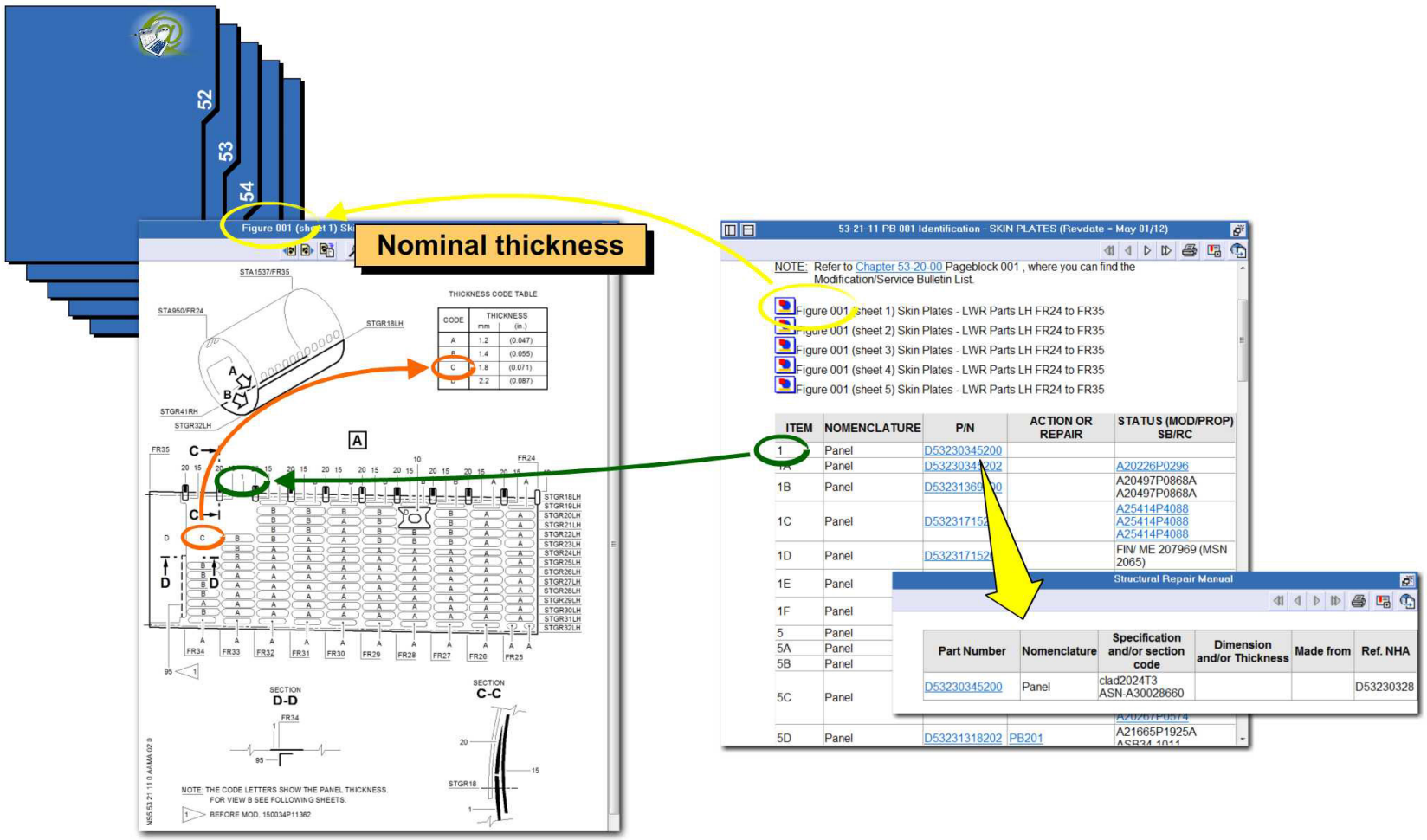
IDENTIFICATION PAGES

In the identification pages, the individual parts of the major components are illustrated and listed in tabular form. Each identification topic begins with an introduction page, which includes a general information paragraph. The item number is the key between the illustration and the identification table. For composite structures, the illustration gives the identification of individual layers, orientation and materials. A ply (layer) orientation reference is also given.
For metallic structure such as fuselage skin panels, the different material thicknesses are provided using letter codes or shaded areas as a key to the thickness tables. The associated identification table provides additional information about material, part number, modification status information.

UGB13131 - U7ST0M0 - UM51D9000000001


IDENTIFICATION PAGES:
- ILLUSTRATIONS,
- IDENTIFICATION TABLES,
- ITEM NUMBER.
System Baskets Search Attachments SRM NTM REG Help
Home page
SRM A320
AirN@v / Repair
Table of contents
52-11-00 PB 001 Identification - FWD PASSENGER/CREW DOOR (Revdate = Nov 01/09)
52-10-00 PB 001 Identification - PASSENGER/CRE
52-10-00 PB 101 Allowable Damage - PASSENGER
52-10-00 PB 101 - SRI PASSENGER/CREW DOOR
52-10-00 PB 201 Repairs - PASSENGER/CREW DO
52-10-00 PB 201 - SRI PASSENGER/CREW DOOR
52-11 - FWD PASSENGER/CREW DOOR
52-11-00 - FWD PASSENGER/CREW DOOR
52-11-00 PB 001 Identification - FWD PASSENGER
52-11-00 PB 101 Allowable Damage - FWD PASSE
52-11-00 PB 201 Repairs - FWD PASSENGER/ CRE
Figure 001 (sheet 1) Panel
52-11-00 PB 001 Identification - FWD PASSENGER/CREW DOOR
1. FWD Passenger/Crew Door- Identification Scheme
ITEM NOMENCLATURE REFER TO
- Panel Figure 001
- Cross Members Figure 002
- Beams and Junction Plates Figure 003
- Edge Members Figure 004
- Miscellaneous Structure Figure 005
NOTE: Refer to Chapter 52-10-00 Pageblock 001 where you can find the Modification/Service Bulletin List.
Figure 001 (sheet 1) Panel
Figure 001 (sheet 2) Panel
ITEM NOMENCLATURE P/N ACTION OR REPAIR STATUS (MOD/PROP) SB/RC
1 Skin D52110415200 D52110415201 52-10-00
1A Skin D52110415202 D52110415203 52-10-00 A20717P1043
1B Skin D52110850200 D52110850201 52-10-00 A23010P2754 A23010P2754
1C Skin D52110819200 D52110819201 52-10-00 A27156P5621 A27156P5621
5 Doubler Window D52110422200 D52110422201
5A Doubler Window D52110422202 D52110422203 A27998P5598 A27998P5598 A27998P5598
Key to Figure 001
Figure 002 (sheet 1) Cross Members
ITEM NOMENCLATURE P/N ACTION OR REPAIR STATUS (MOD/PROP) SB/RC
1 Cross Member D52110371200 D52110371201
5 Cross Member D52110376200 D52110376201
10 Cross Member D52110380200 D52110380201

CHAPTER 52 TO 57 CONTENTS - IDENTIFICATION PAGES


52
53
54
Nominal thickness
THICKNESS CODE TABLE
CODE
THICKNESS
mm
(in.)
A 1.2 (0.047)
B 1.4 (0.055)
C 1.8 (0.071)
D 2.2 (0.087)
NOTE: THE CODE LETTERS SHOW THE PANEL THICKNESS.
FOR VIEW B SEE FOLLOWING SHEETS.
BEFORE MOD. 150034P11362
53-21-11 PB 001 Identification - SKIN PLATES (Revdate = May 01/12)
NOTE: Refer to Chapter 53-20-00 Pageblock 001 , where you can find the Modification/Service Bulletin List.
Figure 001 (sheet 1) Skin Plates - LWR Parts LH FR24 to FR35
Figure 001 (sheet 2) Skin Plates - LWR Parts LH FR24 to FR35
Figure 001 (sheet 3) Skin Plates - LWR Parts LH FR24 to FR35
Figure 001 (sheet 4) Skin Plates - LWR Parts LH FR24 to FR35
Figure 001 (sheet 5) Skin Plates - LWR Parts LH FR24 to FR35
ITEM
NOMENCLATURE
P/N
ACTION OR REPAIR
STATUS (MOD/PROP) SB/RC
1 Panel D53230345200
1A Panel D53230345202 A20226P0296
1B Panel D53231369200 A20497P0868A A20497P0868A
1C Panel D532317152 A25414P4088 A25414P4088 A25414P4088
1D Panel D532317152 FIN/ ME 207969 (MSN 2065)
1E Panel
1F Panel
5 Panel
5A Panel
5B Panel
5C Panel
5D Panel D53231318202 PB201 A21665P1925A
Structural Repair Manual
Part Number
Nomenclature
Specification and/or section code
Dimension and/or Thickness
Made from
Ref. NHA
D53230345200 Panel clad2024T3 ASN-A30028660 D53230328

CHAPTER 52 TO 57 CONTENTS - IDENTIFICATION PAGES

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SRM D/O (3)

CHAPTER 52 TO 57 CONTENTS (continued)

IDENTIFICATION TABLE DETAILED

To find the relevant effectivity linked to a modification shown in the STATUS column, the user must refer to the modification/service bulletin list.

NOTE: Note: the status before or after modification/SB and the relevant modification solution (suffix letter) should not be forgotten. Within the modification/service bulletin list, the effectivities are expressed in MSN.

In the given example item 1, P/N D53230463200 is the basic seat track as it is not related to any modification status.
Item 1A P/N D53231741200 is related to modification status A26101P4573.
The letter A before the modification number means "After mod." (letter B means "Before mod.)
Sometimes a suffix in letter is written after the modification number.
For this example, we will assume we are working on aircraft MSN 2065.
According to the modification / SB list, mod 261001P4573 (with "D" suffix letter) has been embodied on our aircraft MSN 2065.

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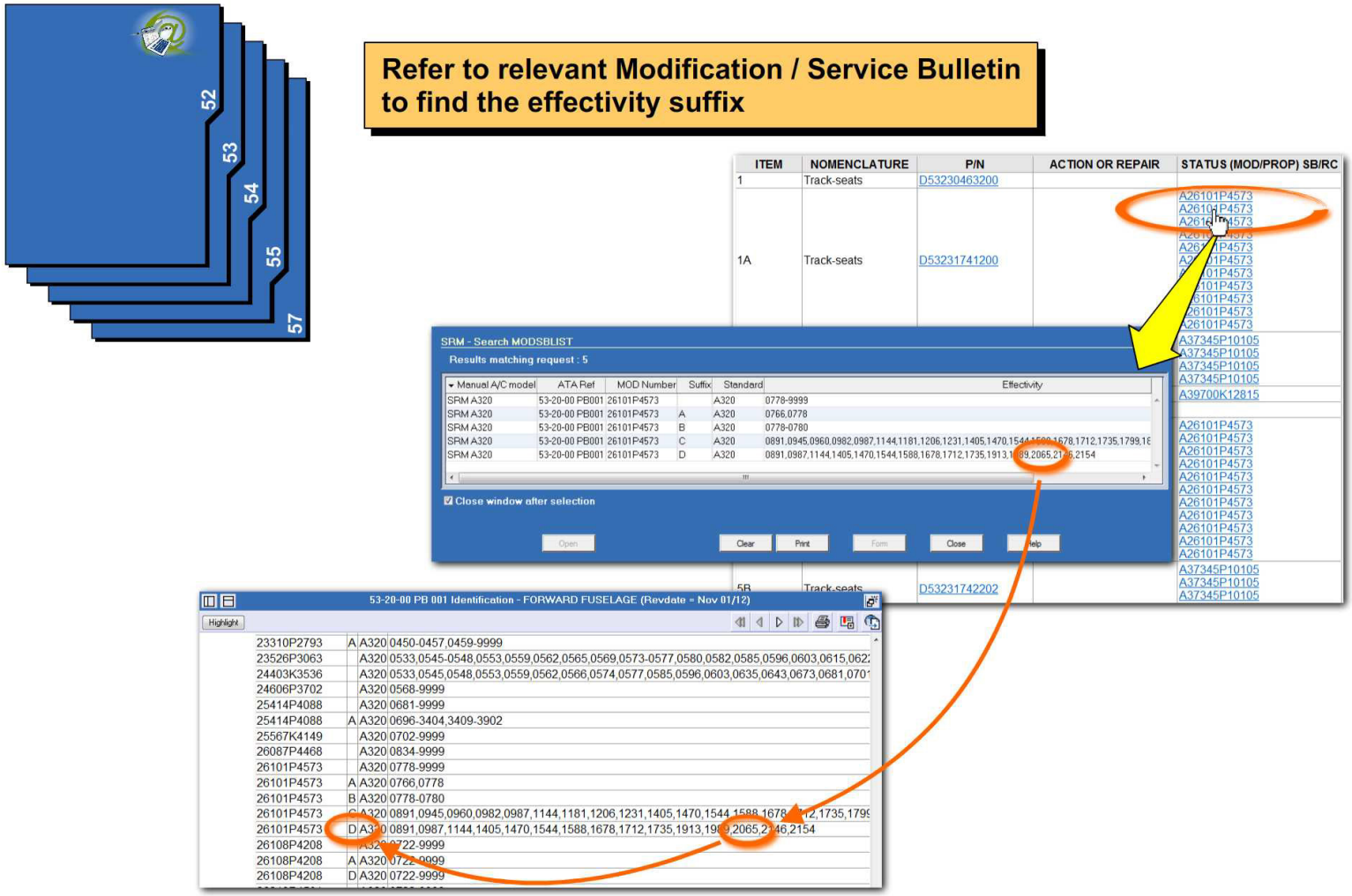

CHAPTER 52 TO 57 CONTENTS - IDENTIFICATION TABLE DETAILED

SRM D/O (3)

CHAPTER 52 TO 57 CONTENTS (continued)

ALLOWABLE DAMAGE PAGE BLOCK

The information to be found within allowable damage page block enables the operator to define whether a damaged airplane may be returned into service without repair. An allowable damage permitted has no significant effect on the strength or fatigue life of the structure, which must still be capable of fulfilling its function. Allowable damage may require minimal rework such as cleanup or drilling of stop holes.

- general information pages,
- damage criteria tables,
- paragraph for each type of damage,
- damage measurement procedure,
- damage localization (zoning) figures,
- allowable damage diagram.

Most of allowable damage paragraphs are associated to an effectivity per weight variant and aircraft type table.

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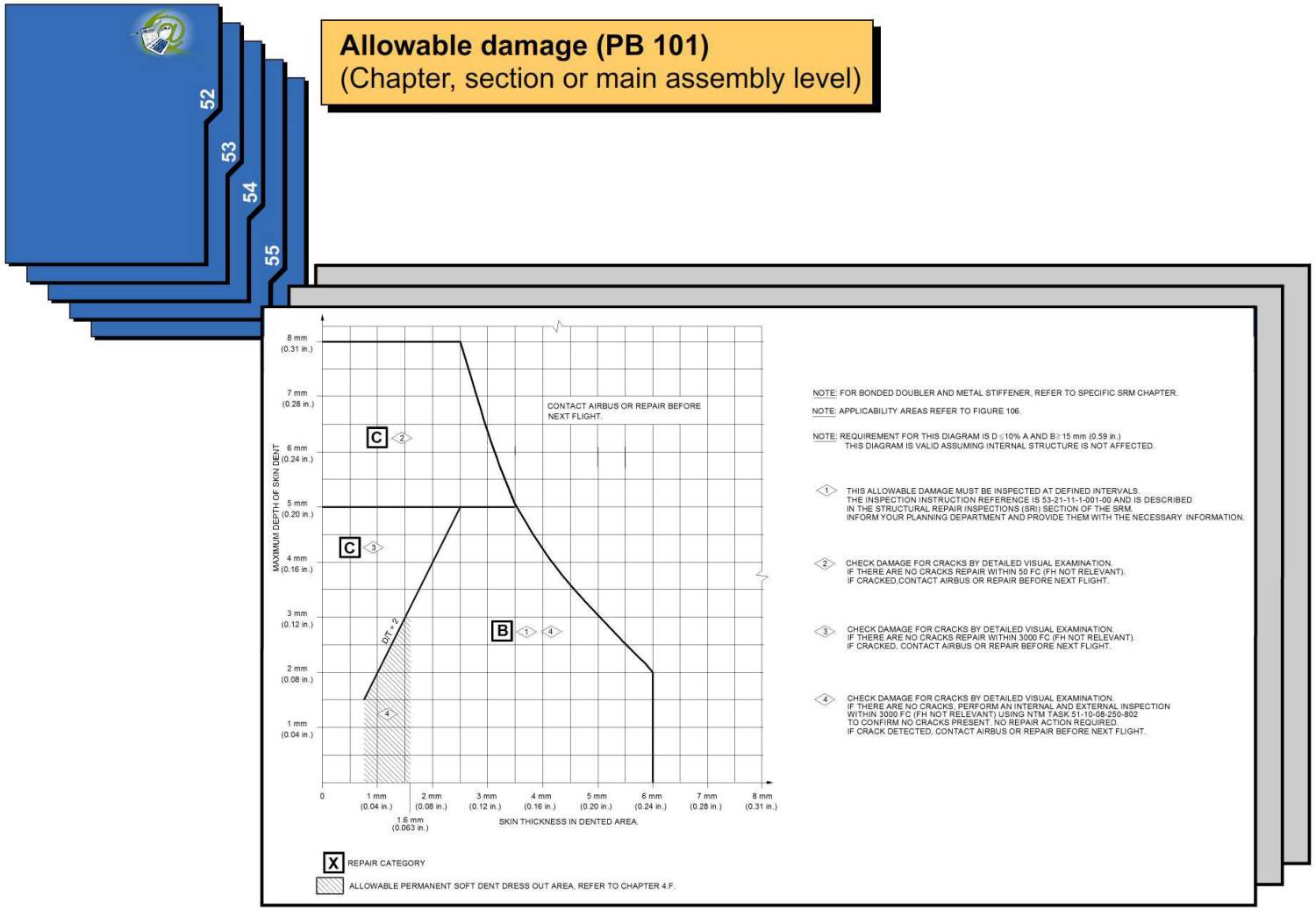
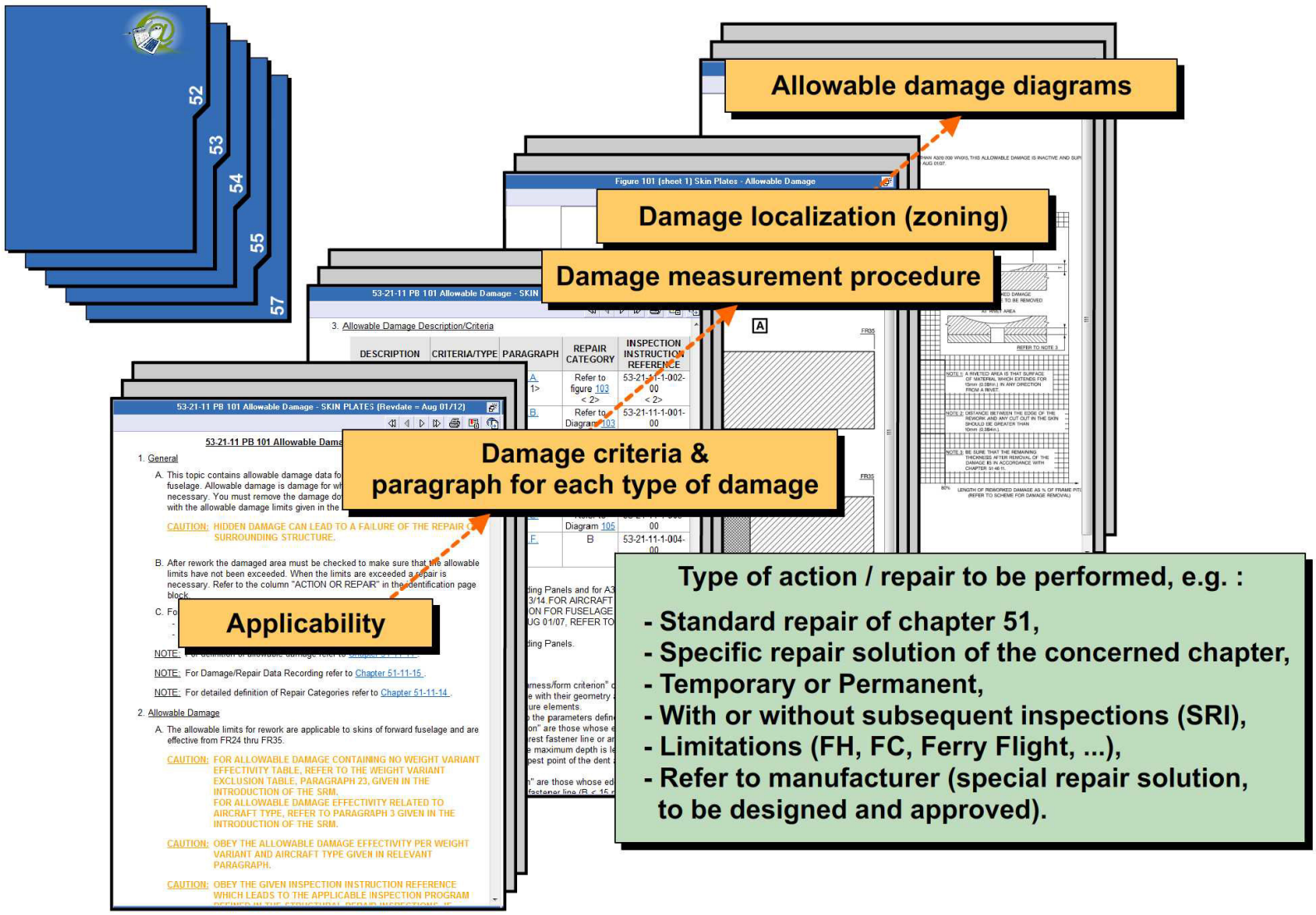

Allowable damage (PB 101)
(Chapter, section or main assembly level)
52
53
54
55
MAXIMUM DEPTH OF SKIN DENT
8 mm (0.31 in.)
7 mm (0.28 in.)
6 mm (0.24 in.)
5 mm (0.20 in.)
4 mm (0.16 in.)
3 mm (0.12 in.)
2 mm (0.08 in.)
1 mm (0.04 in.)
CONTACT AIRBUS OR REPAIR BEFORE NEXT FLIGHT.
C
2
C
3
B
1
4
DIT + 2
4
0
1 mm (0.04 in.)
2 mm (0.08 in.)
3 mm (0.12 in.)
4 mm (0.16 in.)
5 mm (0.20 in.)
6 mm (0.24 in.)
7 mm (0.28 in.)
8 mm (0.31 in.)
1.6 mm (0.063 in.)
SKIN THICKNESS IN DENTED AREA.
X REPAIR CATEGORY
ALLOWABLE PERMANENT SOFT DENT DRESS OUT AREA, REFER TO CHAPTER 4.F.
NOTE: FOR BONDED DOUBLER AND METAL STIFFENER, REFER TO SPECIFIC SRM CHAPTER.
NOTE: APPLICABILITY AREAS REFER TO FIGURE 106.
NOTE: REQUIREMENT FOR THIS DIAGRAM IS D ≤ 10% A AND B ≥ 15 mm (0.59 in.)
THIS DIAGRAM IS VALID ASSUMING INTERNAL STRUCTURE IS NOT AFFECTED.
1 THIS ALLOWABLE DAMAGE MUST BE INSPECTED AT DEFINED INTERVALS.
THE INSPECTION INSTRUCTION REFERENCE IS 53-21-11-1-001-00 AND IS DESCRIBED IN THE STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION OF THE SRM.
INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.
2 CHECK DAMAGE FOR CRACKS BY DETAILED VISUAL EXAMINATION.
IF THERE ARE NO CRACKS REPAIR WITHIN 50 FC (FH NOT RELEVANT).
IF CRACKED,CONTACT AIRBUS OR REPAIR BEFORE NEXT FLIGHT.
3 CHECK DAMAGE FOR CRACKS BY DETAILED VISUAL EXAMINATION.
IF THERE ARE NO CRACKS REPAIR WITHIN 3000 FC (FH NOT RELEVANT).
IF CRACKED, CONTACT AIRBUS OR REPAIR BEFORE NEXT FLIGHT.
4 CHECK DAMAGE FOR CRACKS BY DETAILED VISUAL EXAMINATION.
IF THERE ARE NO CRACKS, PERFORM AN INTERNAL AND EXTERNAL INSPECTION WITHIN 3000 FC (FH NOT RELEVANT) USING NTM TASK 51-10-08-250-802
TO CONFIRM NO CRACKS PRESENT. NO REPAIR ACTION REQUIRED.
IF CRACK DETECTED, CONTACT AIRBUS OR REPAIR BEFORE NEXT FLIGHT.

CHAPTER 52 TO 57 CONTENTS - ALLOWABLE DAMAGE PAGE BLOCK


52
53
54
55
57
Allowable damage diagrams
Figure 101 (sheet 1) Skin Plates - Allowable Damage
Damage localization (zoning)
Damage measurement procedure
53-21-11 PB 101 Allowable Damage - SKIN
3. Allowable Damage Description/Criteria
DESCRIPTION
CRITERIA/TYPE
PARAGRAPH
REPAIR CATEGORY
INSPECTION INSTRUCTION REFERENCE
53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)
Damage criteria & paragraph for each type of damage
1. General
2. Allowable Damage
Applicability
Type of action / repair to be performed, e.g. :
- Standard repair of chapter 51,
- Specific repair solution of the concerned chapter,
- Temporary or Permanent,
- With or without subsequent inspections (SRI),
- Limitations (FH, FC, Ferry Flight, ...),
- Refer to manufacturer (special repair solution, to be designed and approved).

CHAPTER 52 TO 57 CONTENTS - ALLOWABLE DAMAGE PAGE BLOCK

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SRM D/O (3)

CHAPTER 52 TO 57 CONTENTS (continued)

REPAIRS PAGE BLOCK

At the beginning of each repair page block, a list of available repair schemes is given for a quick assessment of repairs.
The repairs can be found in the general section of chapter 53 (e.g.: 53-00-11 for standard fuselage skin repairs), or directly covered within the related section when the repair is specific (e.g. paragraph 5A, Fig. 201).
When repairs are in repair category B, subsequent inspections are necessary and in accordance with inspection instruction reference (SRI).
The Repairs Page Block (PB 201) contains necessary information to carry out permissible repairs. Each of the repairs is described with illustrations and procedure instructions, which includes repair applicability data and repair material list.
Most of repair paragraphs are related to an effectivity per weight variant and aircraft type table.

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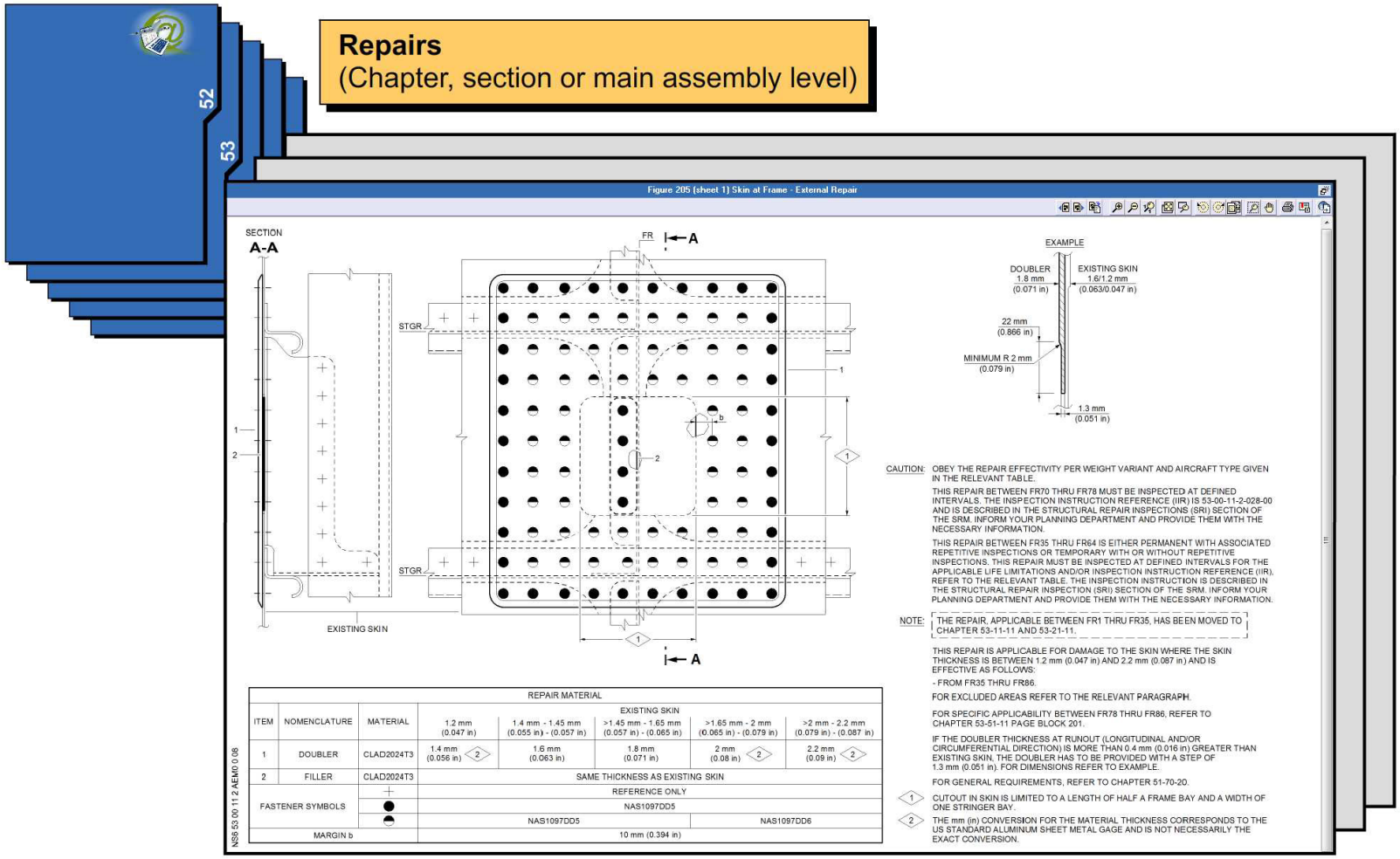
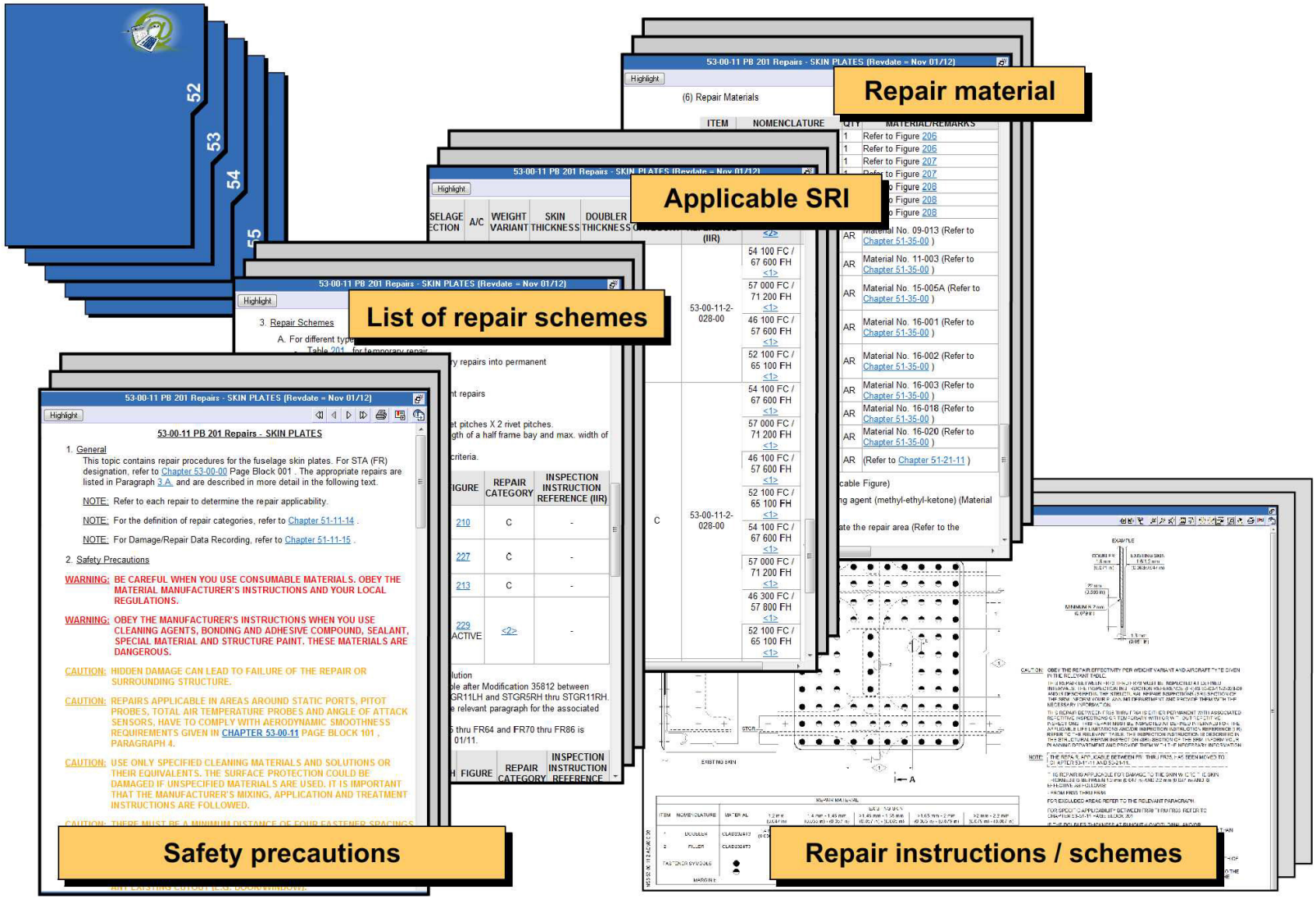

52
53
Repairs
(Chapter, section or main assembly level)
Figure 205 (sheet 1) Skin at Frame - External Repair
SECTION
A-A
FR
A
STGR
EXISTING SKIN
EXAMPLE
DOUBLER
1.8 mm
(0.071 in)
EXISTING SKIN
1.6/1.2 mm
(0.063/0.047 in)
22 mm
(0.866 in)
MINIMUM R 2 mm
(0.079 in)
1.3 mm
(0.051 in)
CAUTION: OBEY THE REPAIR EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN THE RELEVANT TABLE.
THIS REPAIR BETWEEN FR70 THRU FR78 MUST BE INSPECTED AT DEFINED INTERVALS. THE INSPECTION INSTRUCTION REFERENCE (IIR) IS 53-00-11-2-028-00 AND IS DESCRIBED IN THE STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.
THIS REPAIR BETWEEN FR35 THRU FR64 IS EITHER PERMANENT WITH ASSOCIATED REPETITIVE INSPECTIONS OR TEMPORARY WITH OR WITHOUT REPETITIVE INSPECTIONS. THIS REPAIR MUST BE INSPECTED AT DEFINED INTERVALS FOR THE APPLICABLE LIFE LIMITATIONS AND/OR INSPECTION INSTRUCTION REFERENCE (IIR), REFER TO THE RELEVANT TABLE. THE INSPECTION INSTRUCTION IS DESCRIBED IN THE STRUCTURAL REPAIR INSPECTION (SRI) SECTION OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.
NOTE: THE REPAIR, APPLICABLE BETWEEN FR1 THRU FR35, HAS BEEN MOVED TO CHAPTER 53-11-11 AND 53-21-11.
THIS REPAIR IS APPLICABLE FOR DAMAGE TO THE SKIN WHERE THE SKIN THICKNESS IS BETWEEN 1.2 mm (0.047 in) AND 2.2 mm (0.087 in) AND IS EFFECTIVE AS FOLLOWS:
- FROM FR35 THRU FR86.
FOR EXCLUDED AREAS REFER TO THE RELEVANT PARAGRAPH.
FOR SPECIFIC APPLICABILITY BETWEEN FR78 THRU FR86, REFER TO CHAPTER 53-51-11 PAGE BLOCK 201.
IF THE DOUBLER THICKNESS AT RUNOUT (LONGITUDINAL AND/OR CIRCUMFERENTIAL DIRECTION) IS MORE THAN 0.4 mm (0.016 in) GREATER THAN EXISTING SKIN, THE DOUBLER HAS TO BE PROVIDED WITH A STEP OF 1.3 mm (0.051 in). FOR DIMENSIONS REFER TO EXAMPLE.
FOR GENERAL REQUIREMENTS, REFER TO CHAPTER 51-70-20.
1 CUTOUT IN SKIN IS LIMITED TO A LENGTH OF HALF A FRAME BAY AND A WIDTH OF ONE STRINGER BAY.
2 THE mm (in) CONVERSION FOR THE MATERIAL THICKNESS CORRESPONDS TO THE US STANDARD ALUMINUM SHEET METAL GAGE AND IS NOT NECESSARILY THE EXACT CONVERSION.
REPAIR MATERIAL
EXISTING SKIN
ITEM | NOMENCLATURE | MATERIAL | 1.2 mm (0.047 in) | 1.4 mm - 1.45 mm (0.055 in) - (0.057 in) | >1.45 mm - 1.65 mm (0.057 in) - (0.065 in) | >1.65 mm - 2 mm (0.065 in) - (0.079 in) | >2 mm - 2.2 mm (0.079 in) - (0.087 in)
1 | DOUBLER | CLAD2024T3 | 1.4 mm (0.056 in) 2 | 1.6 mm (0.063 in) | 1.8 mm (0.071 in) | 2 mm (0.08 in) 2 | 2.2 mm (0.09 in) 2
2 | FILLER | CLAD2024T3 | SAME THICKNESS AS EXISTING SKIN
FASTENER SYMBOLS | + | REFERENCE ONLY
FASTENER SYMBOLS | ● | NAS1097DD5
FASTENER SYMBOLS | ◓ | NAS1097DD5 | NAS1097DD6
MARGIN b | 10 mm (0.394 in)
N56 53 00 11 2 AEM0 0 08

CHAPTER 52 TO 57 CONTENTS - REPAIRS PAGE BLOCK


52
53
54
55
53-00-11 PB 201 Repairs - SKIN PLATES (Revdate = Nov 01/12)
Highlight
(6) Repair Materials
ITEM
NOMENCLATURE
MATERIAL/REMARKS
Repair material
Applicable SRI
List of repair schemes
53-00-11 PB 201 Repairs - SKIN PLATES
1. General
This topic contains repair procedures for the fuselage skin plates. For STA (FR) designation, refer to Chapter 53-00-00 Page Block 001 . The appropriate repairs are listed in Paragraph 3.A. and are described in more detail in the following text.
NOTE: Refer to each repair to determine the repair applicability.
NOTE: For the definition of repair categories, refer to Chapter 51-11-14 .
NOTE: For Damage/Repair Data Recording, refer to Chapter 51-11-15 .
2. Safety Precautions
WARNING: BE CAREFUL WHEN YOU USE CONSUMABLE MATERIALS. OBEY THE MATERIAL MANUFACTURER'S INSTRUCTIONS AND YOUR LOCAL REGULATIONS.
WARNING: OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE CLEANING AGENTS, BONDING AND ADHESIVE COMPOUND, SEALANT, SPECIAL MATERIAL AND STRUCTURE PAINT. THESE MATERIALS ARE DANGEROUS.
CAUTION: HIDDEN DAMAGE CAN LEAD TO FAILURE OF THE REPAIR OR SURROUNDING STRUCTURE.
CAUTION: REPAIRS APPLICABLE IN AREAS AROUND STATIC PORTS, PITOT PROBES, TOTAL AIR TEMPERATURE PROBES AND ANGLE OF ATTACK SENSORS, HAVE TO COMPLY WITH AERODYNAMIC SMOOTHNESS REQUIREMENTS GIVEN IN CHAPTER 53-00-11 PAGE BLOCK 101 , PARAGRAPH 4.
CAUTION: USE ONLY SPECIFIED CLEANING MATERIALS AND SOLUTIONS OR THEIR EQUIVALENTS. THE SURFACE PROTECTION COULD BE DAMAGED IF UNSPECIFIED MATERIALS ARE USED. IT IS IMPORTANT THAT THE MANUFACTURER'S MIXING, APPLICATION AND TREATMENT INSTRUCTIONS ARE FOLLOWED.
Safety precautions
Repair instructions / schemes

CHAPTER 52 TO 57 CONTENTS - REPAIRS PAGE BLOCK

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SRM D/O (3)

SRM GENERAL USAGE PROCEDURE

SRM general usage procedure.
Some allowable damage diagrams give repair categories. When the damage is included in repair category B, subsequent inspections in accordance with the inspection instruction reference are necessary.

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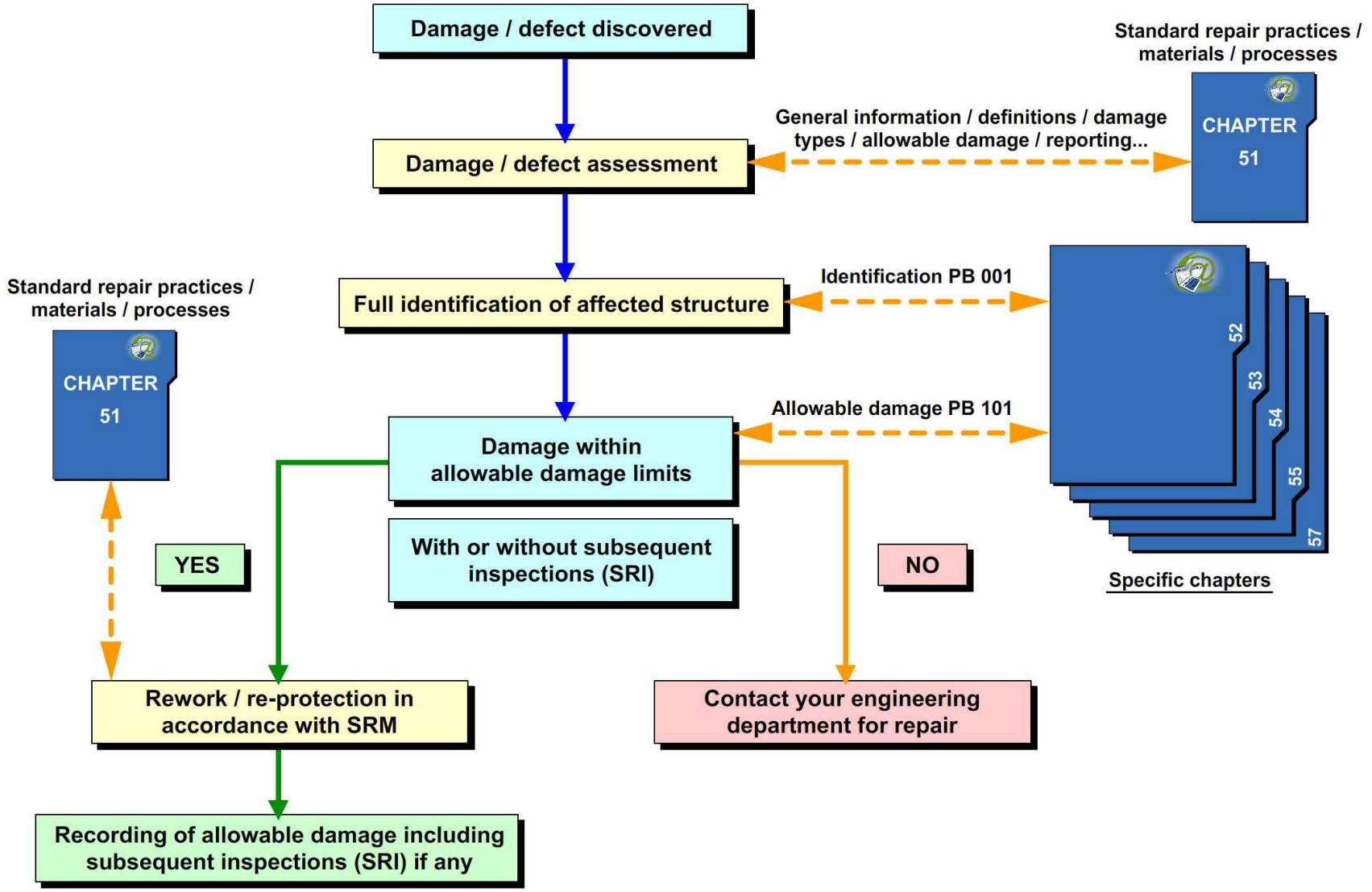
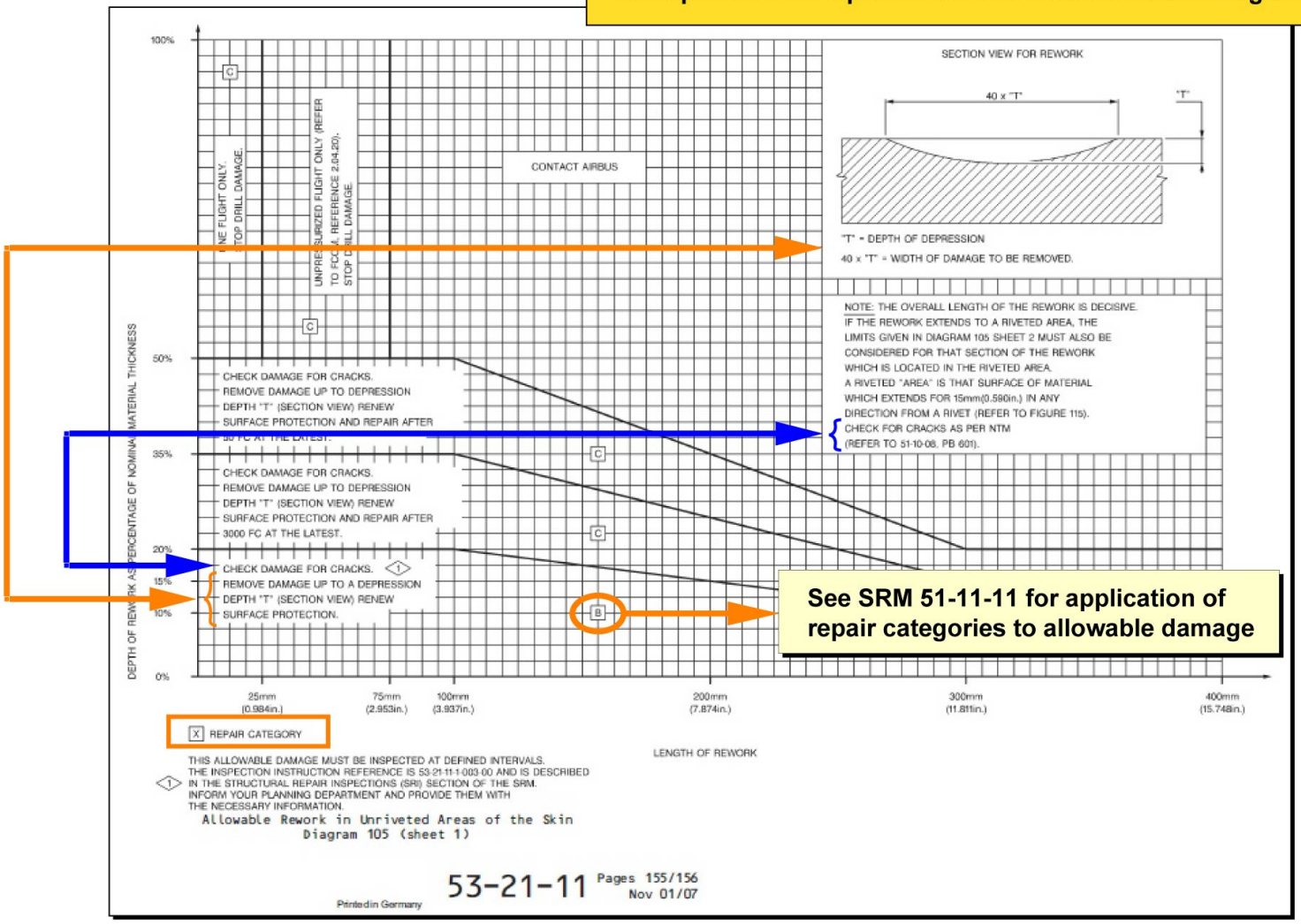

Damage / defect discovered
Damage / defect assessment
Full identification of affected structure
Damage within allowable damage limits
With or without subsequent inspections (SRI)
YES
NO
Rework / re-protection in accordance with SRM
Contact your engineering department for repair
Recording of allowable damage including subsequent inspections (SRI) if any
General information / definitions / damage types / allowable damage / reporting...
Standard repair practices / materials / processes
CHAPTER 51
Identification PB 001
Allowable damage PB 101
52
53
54
55
57
Specific chapters
Standard repair practices / materials / processes
CHAPTER 51

SRM GENERAL USAGE PROCEDURE

Example of S.R.I requirements in allowable rework diagram

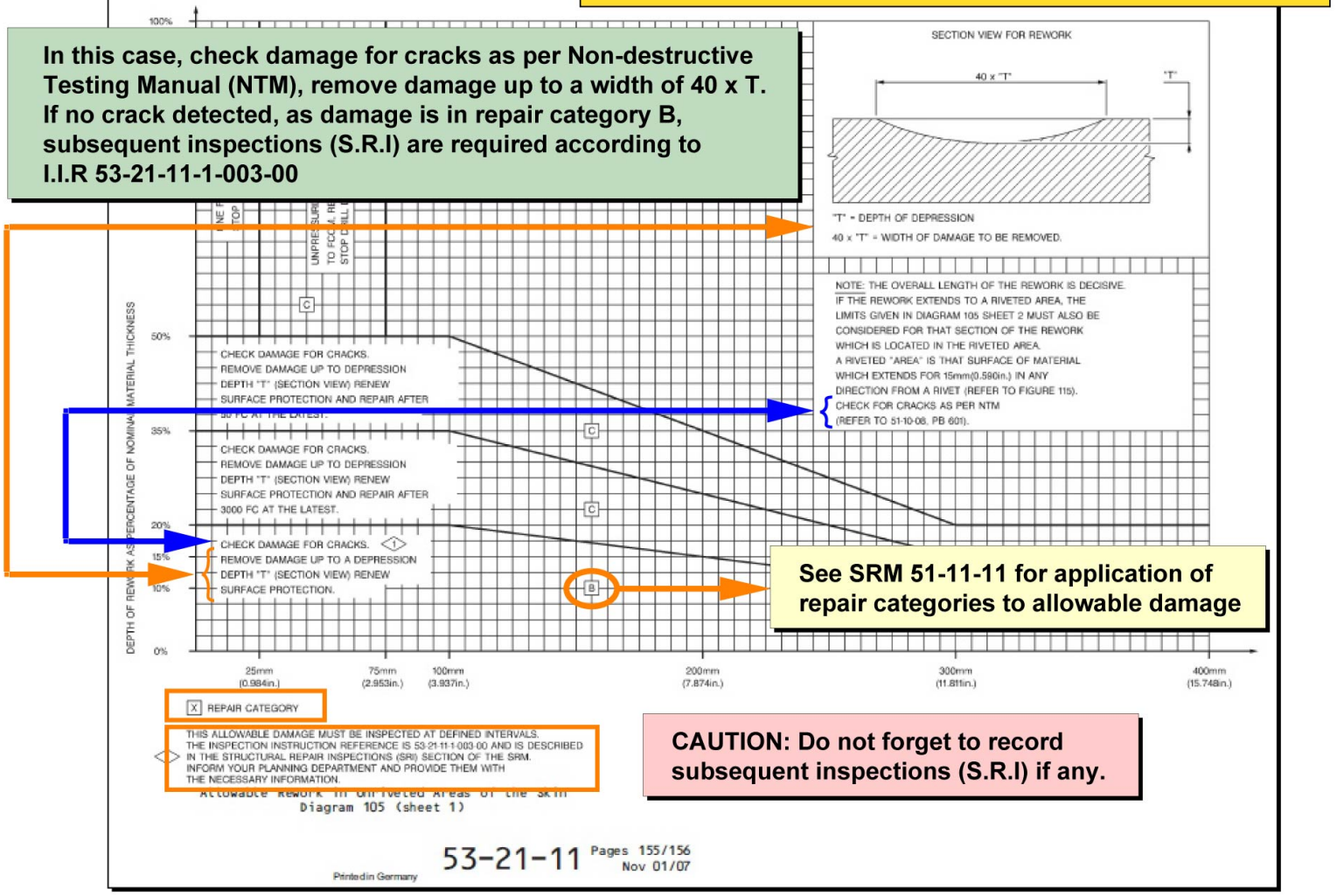

SECTION VIEW FOR REWORK
40 x "T"
"T"
"T" = DEPTH OF DEPRESSION
40 x "T" = WIDTH OF DAMAGE TO BE REMOVED.
NOTE: THE OVERALL LENGTH OF THE REWORK IS DECISIVE.
IF THE REWORK EXTENDS TO A RIVETED AREA, THE LIMITS GIVEN IN DIAGRAM 105 SHEET 2 MUST ALSO BE CONSIDERED FOR THAT SECTION OF THE REWORK WHICH IS LOCATED IN THE RIVETED AREA.
A RIVETED "AREA" IS THAT SURFACE OF MATERIAL WHICH EXTENDS FOR 15mm(0.590in.) IN ANY DIRECTION FROM A RIVET (REFER TO FIGURE 115).
CHECK FOR CRACKS AS PER NTM (REFER TO 51-10-06, PB 601).
CONTACT AIRBUS
ONE FLIGHT ONLY. STOP DRILL DAMAGE.
UNPRESSURIZED FLIGHT ONLY (REFER TO FCOM, REFERENCE 2.04.20). STOP DRILL DAMAGE.
CHECK DAMAGE FOR CRACKS. REMOVE DAMAGE UP TO DEPRESSION DEPTH "T" (SECTION VIEW) RENEW SURFACE PROTECTION AND REPAIR AFTER
CHECK DAMAGE FOR CRACKS. REMOVE DAMAGE UP TO DEPRESSION DEPTH "T" (SECTION VIEW) RENEW SURFACE PROTECTION AND REPAIR AFTER 3000 FC AT THE LATEST.
CHECK DAMAGE FOR CRACKS. REMOVE DAMAGE UP TO A DEPRESSION DEPTH "T" (SECTION VIEW) RENEW SURFACE PROTECTION.
DEPTH OF REWORK AS PERCENTAGE OF NOMINAL MATERIAL THICKNESS
100%
50%
35%
20%
15%
10%
0%
25mm (0.984in.)
75mm (2.953in.)
100mm (3.937in.)
200mm (7.874in.)
300mm (11.811in.)
400mm (15.748in.)
LENGTH OF REWORK
X REPAIR CATEGORY
THIS ALLOWABLE DAMAGE MUST BE INSPECTED AT DEFINED INTERVALS. THE INSPECTION INSTRUCTION REFERENCE IS 53-21-11-1-003-00 AND IS DESCRIBED IN THE STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.
Allowable Rework in Unriveted Areas of the Skin
Diagram 105 (sheet 1)
53-21-11 Pages 155/156 Nov 01/07
Printed in Germany

See SRM 51-11-11 for application of repair categories to allowable damage

SRM GENERAL USAGE PROCEDURE

Example of S.R.I requirements in allowable rework diagram

In this case, check damage for cracks as per Non-destructive Testing Manual (NTM), remove damage up to a width of 40 x T. If no crack detected, as damage is in repair category B, subsequent inspections (S.R.I) are required according to I.I.R 53-21-11-1-003-00


SECTION VIEW FOR REWORK
40 x "T"
"T"
"T" = DEPTH OF DEPRESSION
40 x "T" = WIDTH OF DAMAGE TO BE REMOVED.
NOTE: THE OVERALL LENGTH OF THE REWORK IS DECISIVE.
IF THE REWORK EXTENDS TO A RIVETED AREA, THE LIMITS GIVEN IN DIAGRAM 105 SHEET 2 MUST ALSO BE CONSIDERED FOR THAT SECTION OF THE REWORK WHICH IS LOCATED IN THE RIVETED AREA.
A RIVETED "AREA" IS THAT SURFACE OF MATERIAL WHICH EXTENDS FOR 15mm(0.590in.) IN ANY DIRECTION FROM A RIVET (REFER TO FIGURE 115).
CHECK FOR CRACKS AS PER NTM
(REFER TO 51-10-06, PB 601).
DEPTH OF REWORK AS PERCENTAGE OF NOMINAL MATERIAL THICKNESS
100%
50%
35%
20%
15%
10%
0%
CHECK DAMAGE FOR CRACKS.
REMOVE DAMAGE UP TO DEPRESSION
DEPTH "T" (SECTION VIEW) RENEW
SURFACE PROTECTION AND REPAIR AFTER
CHECK DAMAGE FOR CRACKS.
REMOVE DAMAGE UP TO DEPRESSION
DEPTH "T" (SECTION VIEW) RENEW
SURFACE PROTECTION AND REPAIR AFTER
3000 FC AT THE LATEST.
CHECK DAMAGE FOR CRACKS.
REMOVE DAMAGE UP TO A DEPRESSION
DEPTH "T" (SECTION VIEW) RENEW
SURFACE PROTECTION.
25mm (0.984in.)
75mm (2.953in.)
100mm (3.937in.)
200mm (7.874in.)
300mm (11.811in.)
400mm (15.748in.)
X REPAIR CATEGORY
THIS ALLOWABLE DAMAGE MUST BE INSPECTED AT DEFINED INTERVALS.
THE INSPECTION INSTRUCTION REFERENCE IS 53-21-11-1-003-00 AND IS DESCRIBED IN THE STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION OF THE SRM.
INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.
Diagram 105 (sheet 1)
53-21-11 Pages 155/156 Nov 01/07
Printed in Germany

See SRM 51-11-11 for application of repair categories to allowable damage

CAUTION: Do not forget to record subsequent inspections (S.R.I) if any.

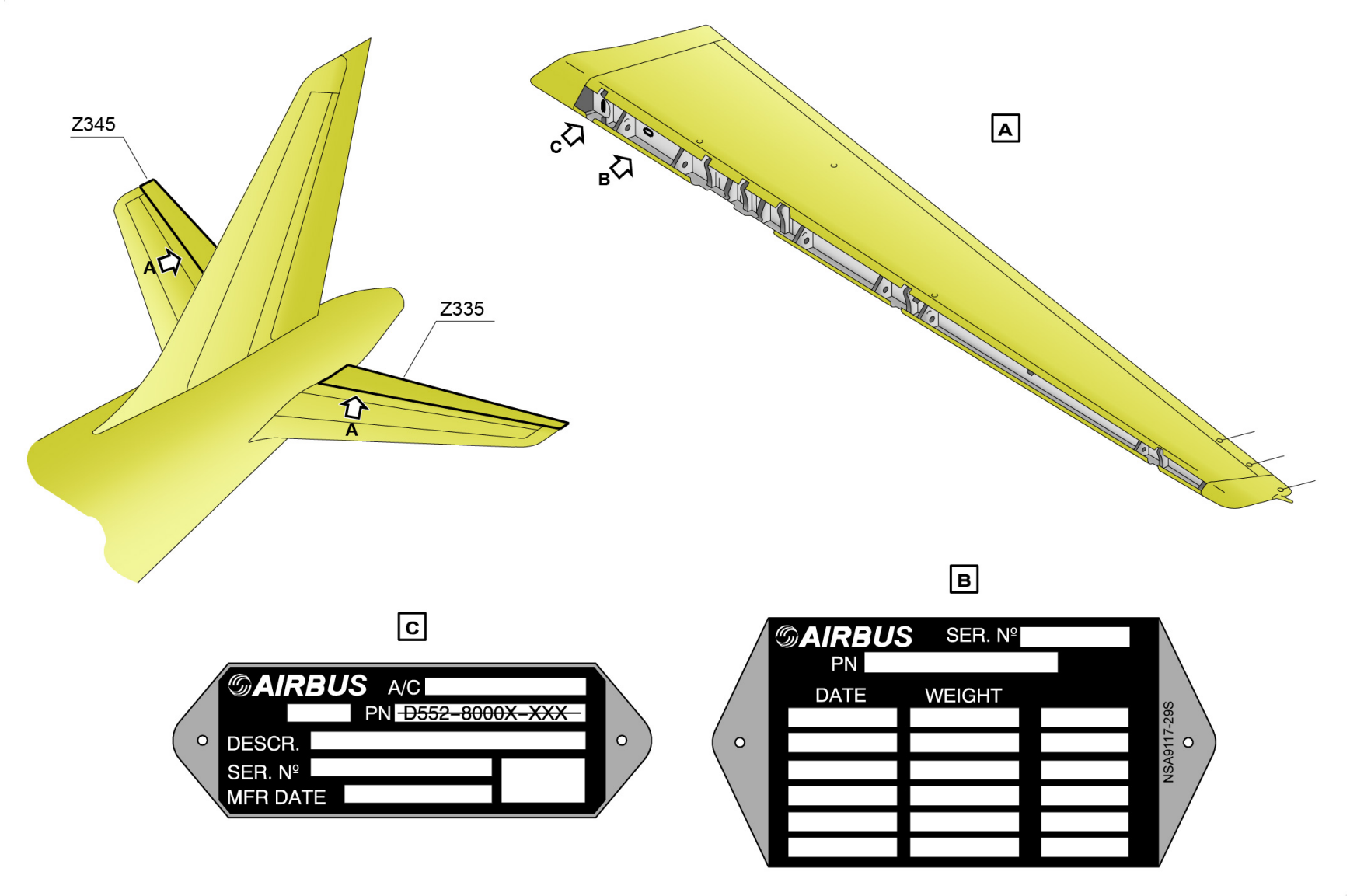
SRM GENERAL USAGE PROCEDURE

SRM D/O (3)

ELEVATOR WEIGHT RECORD PLATE

A riveted plate is installed in the elevators front spar to give the weight of the elevator after a maintenance procedure.

WARNING: THIS PROCEDURE IS IN A CATEGORY KNOWN AS A CRITICAL DESIGN CONFIGURATION CONTROL LIMITATION (CDCCL). YOU MUST KEEP ALL CDCCL ITEMS IN THE APPROVED CONFIGURATION. MAKE SURE THAT THE WEIGHT OF THE ELEVATOR IS IN THE SPECIFIED LIMITS.



ELEVATOR WEIGHT RECORD PLATE

DAMAGE ASSESSMENT EXAMPLE D/O (3)

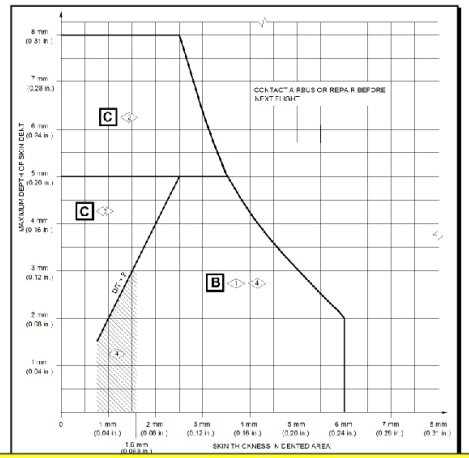
INTRODUCTION

The purpose of this damage assessment example is to show the complete procedure to follow when a damage is discovered from the damage mapping to the final structure damage assessment. Assumption is that damage occurred on the A320-232 MSN 1506.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Assessment = Decision making:
Allowable damage or repair action using SRM relevant pages

SRM



ALLOWABLE DAMAGE ??

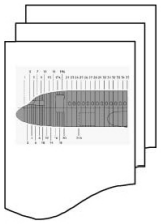
YES

NO

Small reworks/reprotection if necessary

Repair

Damage Mapping



- **Damage identification**
- **Damage Location**
- **Damage Measurements**
- **Structure Identification**

A/C information
MSN: 1506

A/C Release

INTRODUCTION

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ASSESMENT STEPS

Using SRM as a guide, the damage assessment process follows different steps:
On the Aircraft:
-Damage identification,
-Damage geographical location,
-Damage measurements.
Using the SRM:
-Detailed location,
-Structure identification,
-Allowable damage information,
-Allowable damage usage.

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Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

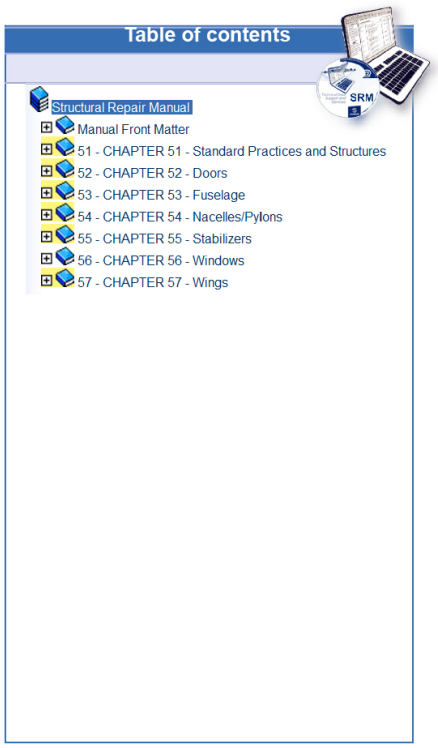
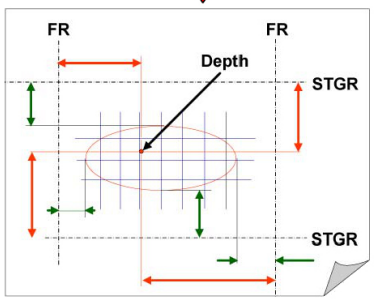


Table of contents
SRM
Structural Repair Manual
Manual Front Matter
51 - CHAPTER 51 - Standard Practices and Structures
52 - CHAPTER 52 - Doors
53 - CHAPTER 53 - Fuselage
54 - CHAPTER 54 - Nacelles/Pylons
55 - CHAPTER 55 - Stabilizers
56 - CHAPTER 56 - Windows
57 - CHAPTER 57 - Wings

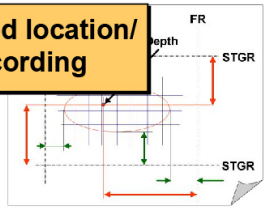
Damage Identification

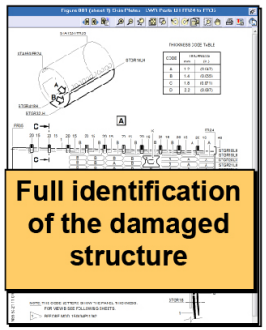
MSN: 1506



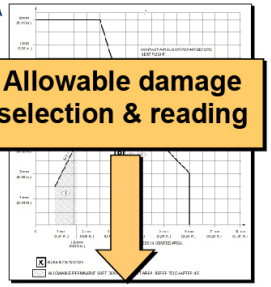
Damage Preliminary Recording
- Geographical location
- Dimensions / Measurements

Detailed location/ recording





Full identification of the damaged structure



Allowable damage selection & reading

DECISION MAKING

ASSESMENT STEPS

DAMAGE ASSESSMENT EXAMPLE D/O (3)

DAMAGE IDENTIFICATION

The first stage is the damage identification, information related to damage type definitions is given in SRM 51-11-11 chapter. In our case, the damage is a dent.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

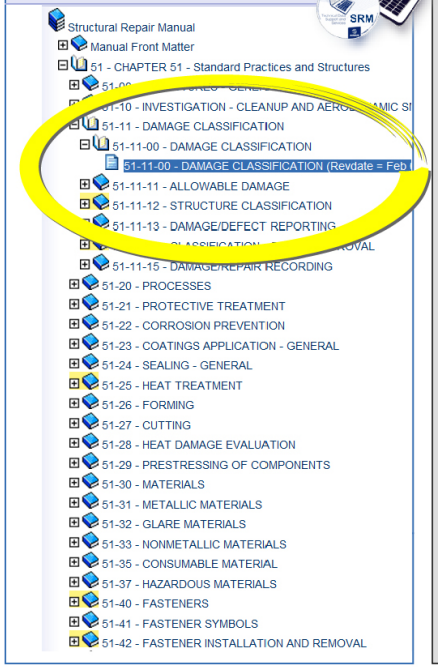
Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents


Structural Repair Manual
Manual Front Matter
51 - CHAPTER 51 - Standard Practices and Structures
51-10 - INVESTIGATION - CLEANUP AND AEROSTATIC SEALING
51-11 - DAMAGE CLASSIFICATION
51-11-00 - DAMAGE CLASSIFICATION
51-11-00 - DAMAGE CLASSIFICATION (Revdate = Feb 01/12)
51-11-11 - ALLOWABLE DAMAGE
51-11-12 - STRUCTURE CLASSIFICATION
51-11-13 - DAMAGE/DEFECT REPORTING
51-11-15 - DAMAGE/REPAIR RECORDING
51-20 - PROCESSES
51-21 - PROTECTIVE TREATMENT
51-22 - CORROSION PREVENTION
51-23 - COATINGS APPLICATION - GENERAL
51-24 - SEALING - GENERAL
51-25 - HEAT TREATMENT
51-26 - FORMING
51-27 - CUTTING
51-28 - HEAT DAMAGE EVALUATION
51-29 - PRESTRESSING OF COMPONENTS
51-30 - MATERIALS
51-31 - METALLIC MATERIALS
51-32 - GLARE MATERIALS
51-33 - NONMETALLIC MATERIALS
51-35 - CONSUMABLE MATERIAL
51-37 - HAZARDOUS MATERIALS
51-40 - FASTENERS
51-41 - FASTENER SYMBOLS
51-42 - FASTENER INSTALLATION AND REMOVAL

Information related to damage types and definitions is given in SRM 51-11-00 chapter.

51-11-00 - DAMAGE CLASSIFICATION (Revdate = Feb 01/12)

Dent	X				A dent is a damaged area which is pushed in, with respect to its usual contour. There is no cross-sectional area change in the material, area edges are smooth.
Nick	X				A small decrease of material due to a knock etc. at the edge of a member or skin.
Distortion	X			X	Any twisting, bending or permanent strain which results in misalignment or change of effect.
Crease	X				A damaged area which is pushed in or folded back on itself. The edges are sharp or well specified lines or ridges.
Abrasion	X			X	An abrasion is a damage area of all sizes which causes change in a cross-sectional area because of scuffing, rubbing, scraping or other surface erosion. It is usually rough and irregular.
Debonding	X	X		X	Debonding is when a

Dent X A dent is a damaged area which is pushed in, with respect to its usual contour. There is no cross-sectional area change in the material, area edges are smooth.

DAMAGE IDENTIFICATION

DAMAGE ASSESSMENT EXAMPLE D/O (3)

DAMAGE GEOGRAPHICAL LOCATION/MEASUREMENT

Identify all the visible structure around the damage area (examples given: longitudinal skin joints, circumferential skin joints, fastener lines, window line, passenger, emergency or cargo doors,...). The dent location is on the left hand side of the fuselage between the fourth and the fifth frame forward the first circumferential joint forward of the overwing emergency exit doors, and between the eighth and the ninth below the second longitudinal skin joint below the cabin window line.

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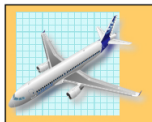
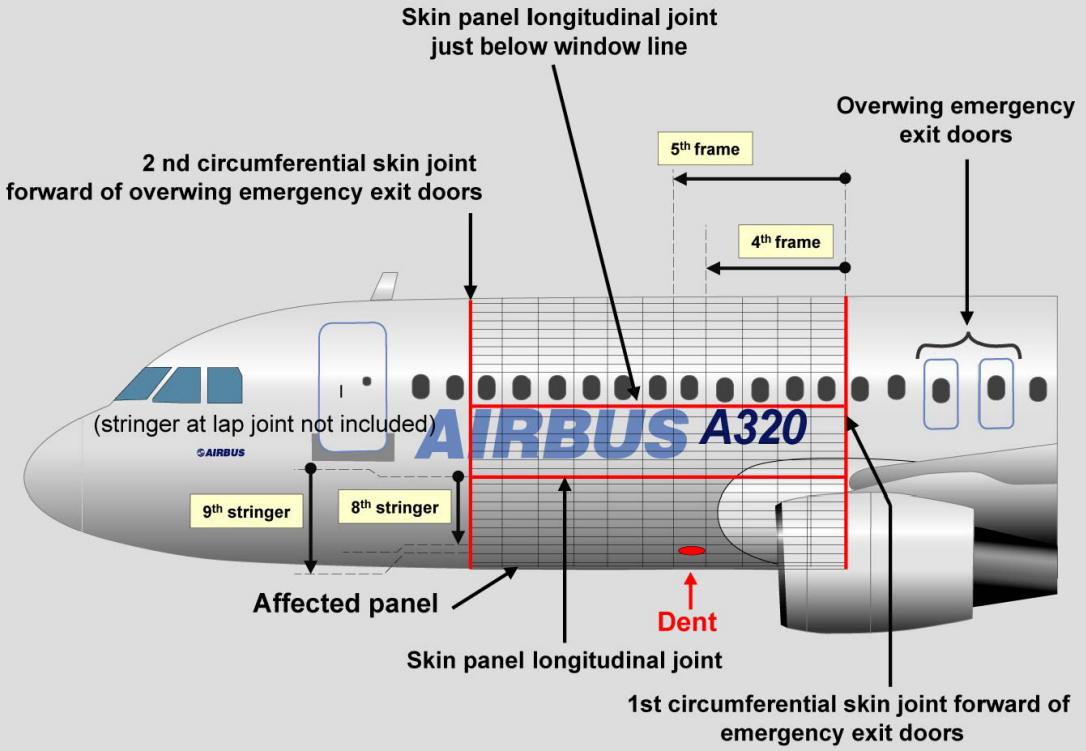
- Damage Identification
- **DamageGeographical Location / Measurement**
- Detailed Location
- Structure Identification
- Allowable Damage Information
- Allowable Damage Usage



On the A/C:

Identify all the visible structure details around the damage area (e.g. longitudinal skin joint, circumferential skin joints, fastener lines, window line, ...)



DAMAGE GEOGRAPHICAL LOCATION/MEASUREMENT

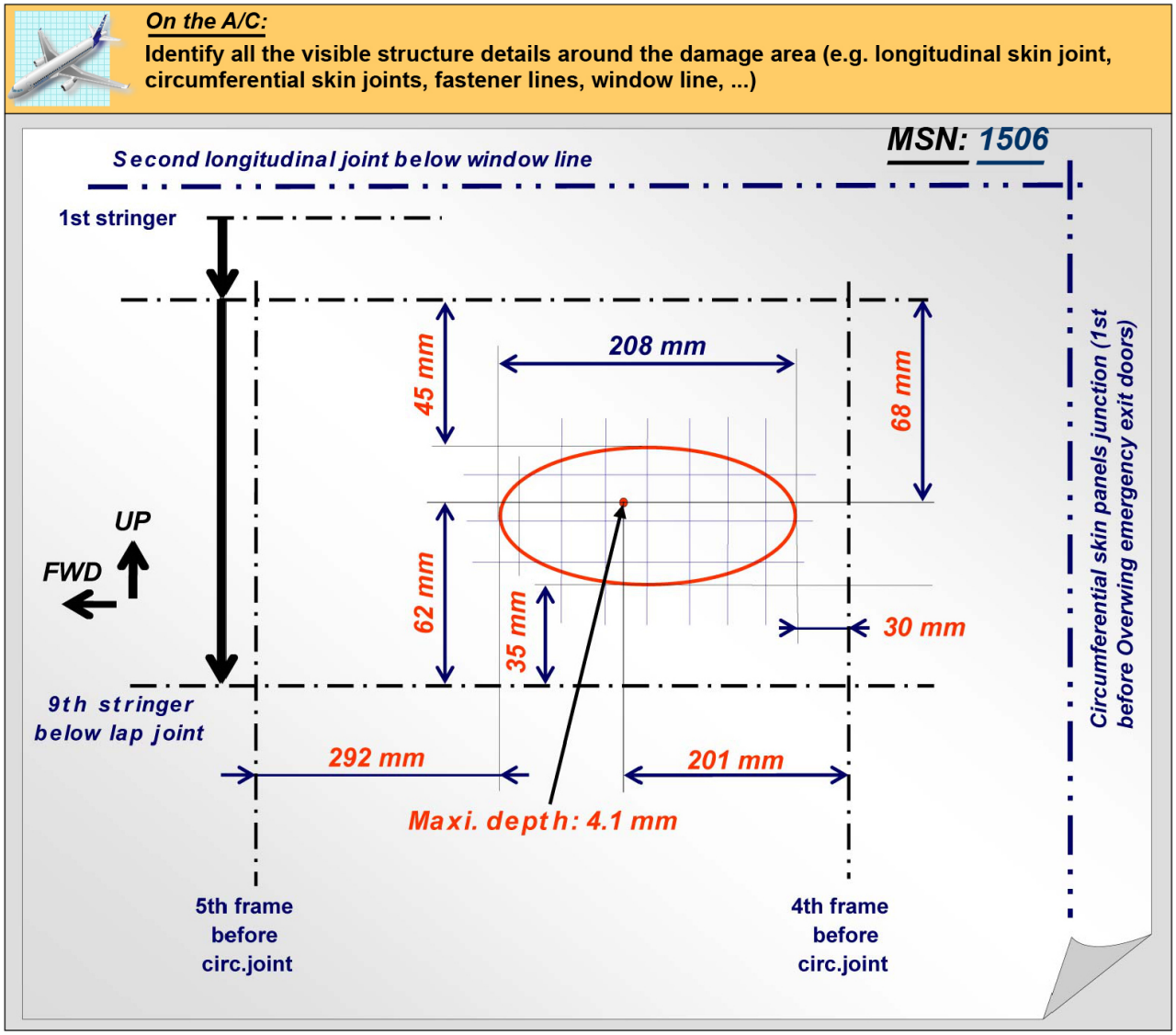
DAMAGE ASSESSMENT EXAMPLE D/O (3)

DAMAGE GEOGRAPHICAL LOCATION/MEASUREMENT (continued)

CONT'D

When doing the mapping, record data concerning the dimensions of the damage, if the damage is a dent, we need to record at least its length and its maximum depth. We need also to record, the distances from the edge of the dent and the nearest fastener lines in all directions (up, down, left and right), and the distances from the deepest point of the dent and the nearest fastener lines in all directions. Caution: do not forget to mention references such as FWD or AFT, UP or DOWN on your mapping.

- Damage Identification
- DamageGeographical Location / Measurement
- Detailed Location
- Structure Identification
- Allowable Damage Information
- Allowable Damage Usage


On the A/C:
Identify all the visible structure details around the damage area (e.g. longitudinal skin joint, circumferential skin joints, fastener lines, window line, ...)
MSN: 1506
Second longitudinal joint below window line
1st stringer
45 mm
208 mm
68 mm
UP
FWD
62 mm
35 mm
30 mm
9th stringer below lap joint
292 mm
201 mm
Maxi. depth: 4.1 mm
Circumferential skin panels junction (1st before Overwing emergency exit doors)
5th frame before circ.joint
4th frame before circ.joint

DAMAGE GEOGRAPHICAL LOCATION/MEASUREMENT - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

DETAILLED LOCATION

Using the data collected from the A/C (geographical location, mapping, ...).
Use the SRM to refine the damage location (frame numbers, stringer numbers, ...).

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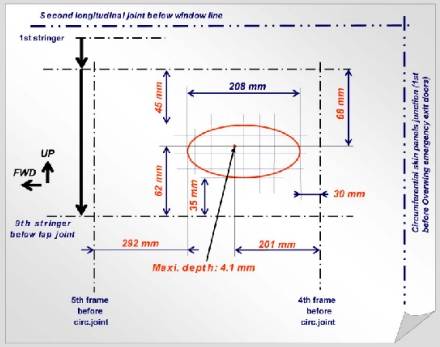
- Damage Identification
- DamageGeographical Location / Measurement
- **Detailed Location**
- Structure Identification
- Allowable Damage Information
- Allowable Damage Usage

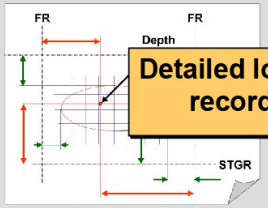
Objective:

Using the damage data collected from the A/C (geographical location, dimensions,...).
Use the SRM to refine the damage location (frame numbers, stringer numbers, ...).

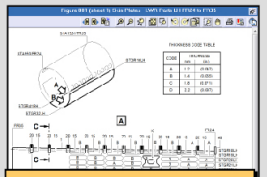
MSN: 1506



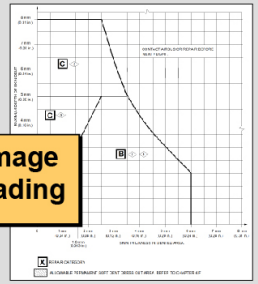
Damage Preliminary Recording
- Geographical location
- Dimensions / Measurements



Detailed location/ recording



Full identification of the damaged structure



Allowable damage selection & reading

DETAILLED LOCATION

DAMAGE ASSESSMENT EXAMPLE D/O (3)

DETAILLED LOCATION (continued)

CONT'D

The damage affects the fuselage, we have to refer to ATA 53 chapter. The SRM chapter 53-00-00 gives several illustrations to use for the location of the damage; one giving the fuselage section division, one giving the main panel and section configuration, and one giving the frame and the station numbers.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

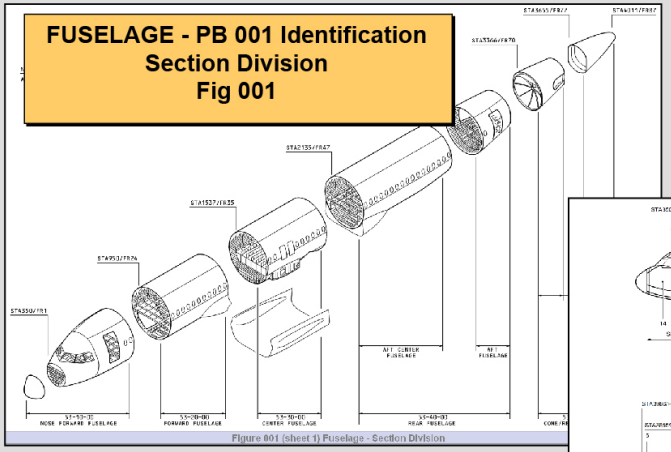
Table of contents

- Structural Repair Manual
  - Manual Front Matter
  - 51 - CHAPTER 51 - Standard Practices and Structures
  - 52 - CHAPTER 52 - D
  - CHAPTER 53 - Fuselage
    - 53-00 - FUSELAGE
    - 53-00-00 - FUSELAGE
      - 53-00-00 PB 001 Identification - FUSELAGE (Re
      - 53-00-00 PB 101 Allowable Damage - FUSELA(
    - 53-00-11 - SKIN PLATES
    - 53-00-12 - FRAMES
    - 53-00- STIFFENERS
    - 53-00-14 - FLOOR STRUCTURE
    - 53-00-15 - SEAT TRACKS
    - 53-00-29 - MISCELLANEOUS STRUCTURE
  - 53-02 - FLOOR PANELS
  - 53-10 - NOSE FWD FUSELAGE
  - 53-11 - MAIN STRUCTURE
  - 53-12 - FLOORS PANELS
  - 53-13 - SUPPORT STRUTS
  - 53-16 - FITTINGS
  - 53-19 - MISCELLANEOUS (DRAINS, ...)
  - 53-20 - FORWARD FUSELAGE
  - 53-21 - MAIN STRUCTURE

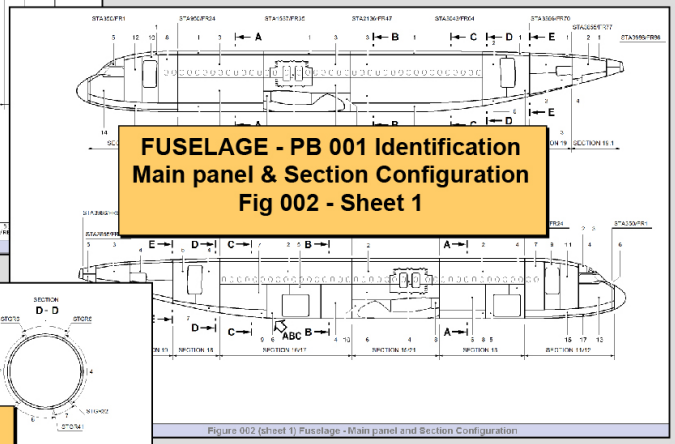
Structural Repair Manual:

The SRM chapter 53-00-00 provides several illustrations to be used to locate the damage

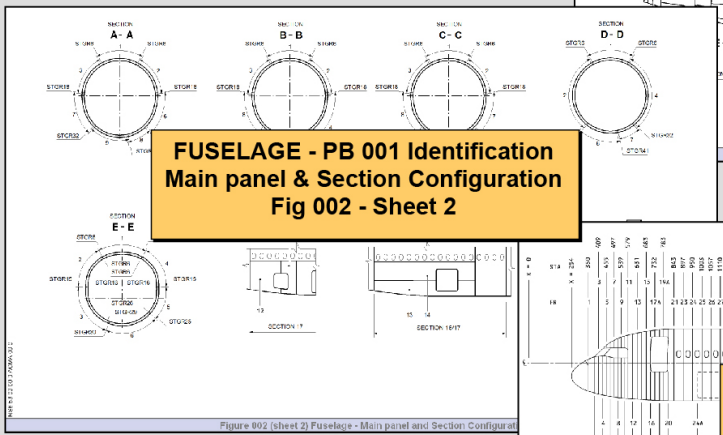
FUSELAGE - PB 001 Identification
Section Division
Fig 001



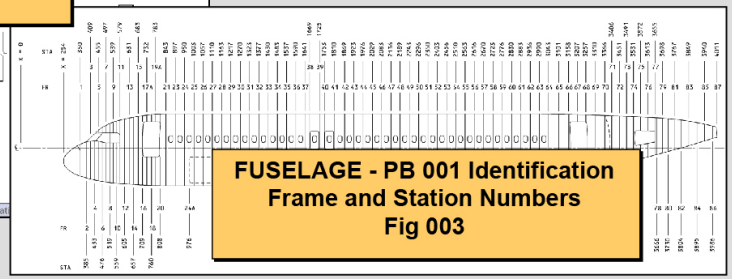
FUSELAGE - PB 001 Identification
Main panel & Section Configuration
Fig 002 - Sheet 1



FUSELAGE - PB 001 Identification
Main panel & Section Configuration
Fig 002 - Sheet 2



FUSELAGE - PB 001 Identification
Frame and Station Numbers
Fig 003



DETAILLED LOCATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

DETAILLED LOCATION (continued)

CONT'D

The first illustration gives the fuselage section division. This illustration shows that the circumferential skin joint forward the overwing emergency exit doors is at frame 35. Thus, the dent is in the forward fuselage section between frames 24 and 35, refer to SRM 53-20-00.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

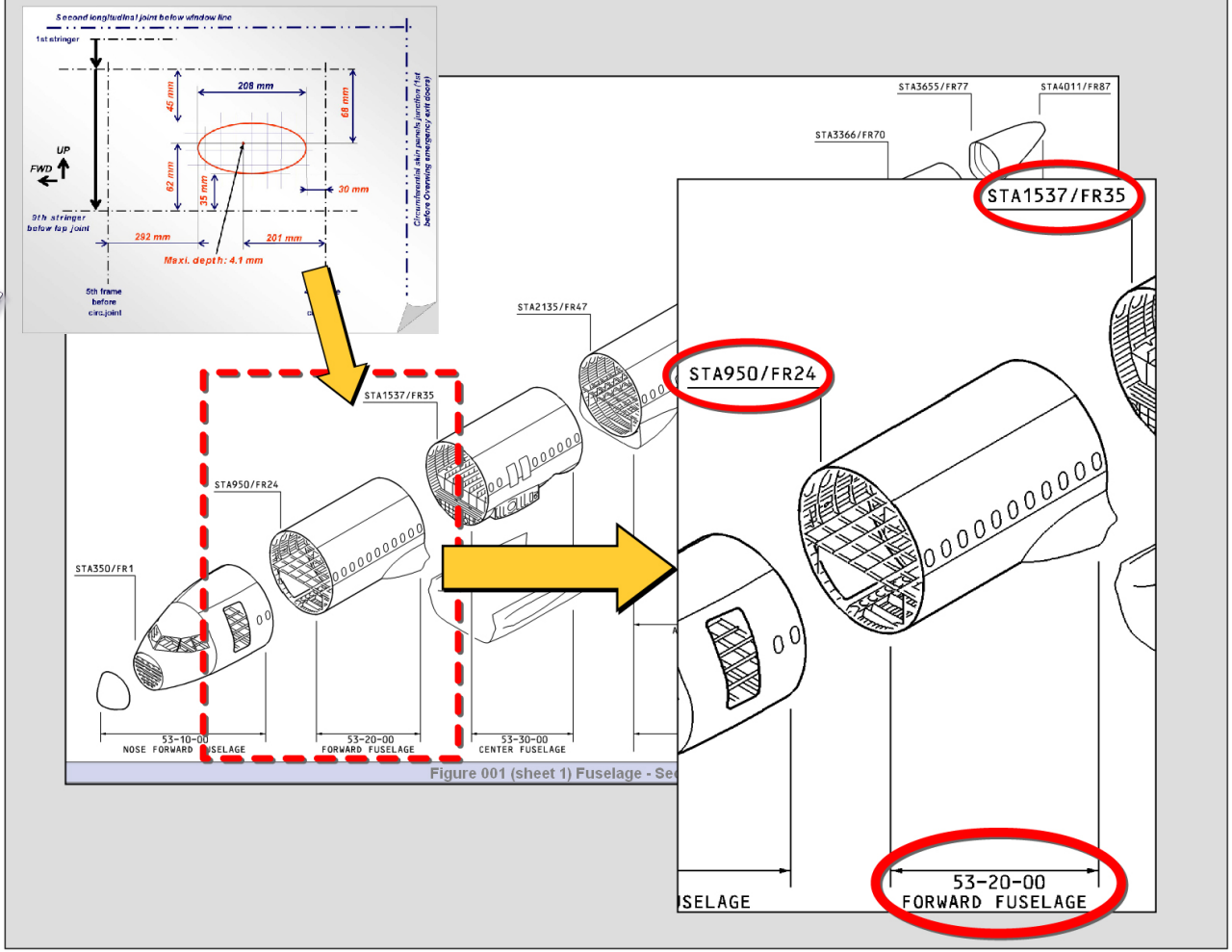
Allowable Damage Usage

Table of contents

- Structural Repair Manual
  - Manual Front Matter
  - 51 - CHAPTER 51 - Standard Practices and Structures
  - 52 - CHAPTER 52 - Doors
  - 53 - CHAPTER 53 - Fuselage
    - 53-00 - FUSELAGE
      - 53-00-00 - FUSELAGE
        - 53-00-00 PB 001 Identification - FUSELAGE (Re
        - 53-00-00 PB 101 Allowable Damage - FUSELAG
      - 53-00-11 - SKIN PLATES
      - 53-00-12 - FRAMES
      - 53-00-13 - STRINGERS AND SKIN STIFFENERS
      - 53-00-14 - FLOOR STRUCTURE
      - 53-00-15 - SEAT TRACKS
      - 53-00-29 - MISCELLANEOUS STRUCTURE
    - 53-02 - FLOOR PANELS
    - 53-10 - NOSE FWD FUSELAGE
    - 53-11 - MAIN STRUCTURE
    - 53-12 - FLOORS PANELS
    - 53-13 - SUPPORT STRUTS
    - 53-16 - FITTINGS
    - 53-19 - MISCELLANEOUS (DRAINS, ...)
    - 53-20 - FORWARD FUSELAGE
    - 53-21 - MAIN STRUCTURE

Structural Repair Manual:

Fuselage sections breakdown => Section SRM relevant chapter (53-20-00)



DETAILLED LOCATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

DETAILLED LOCATION (continued)

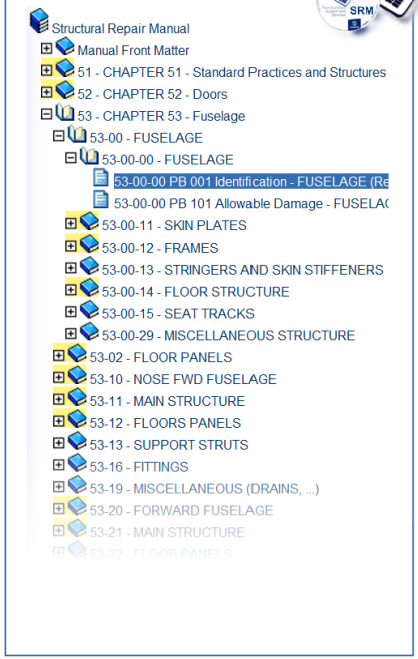
CONT'D

This illustration gives the frame and station numbers. According to the previous stage, there are circumferential skin joints at frame 24 and 25. The dent location is between the fourth and the fifth frame forward frame 35 thus, between frames 30 and 31.

UGB13131 - U7ST0M0 - UM51DB000000001

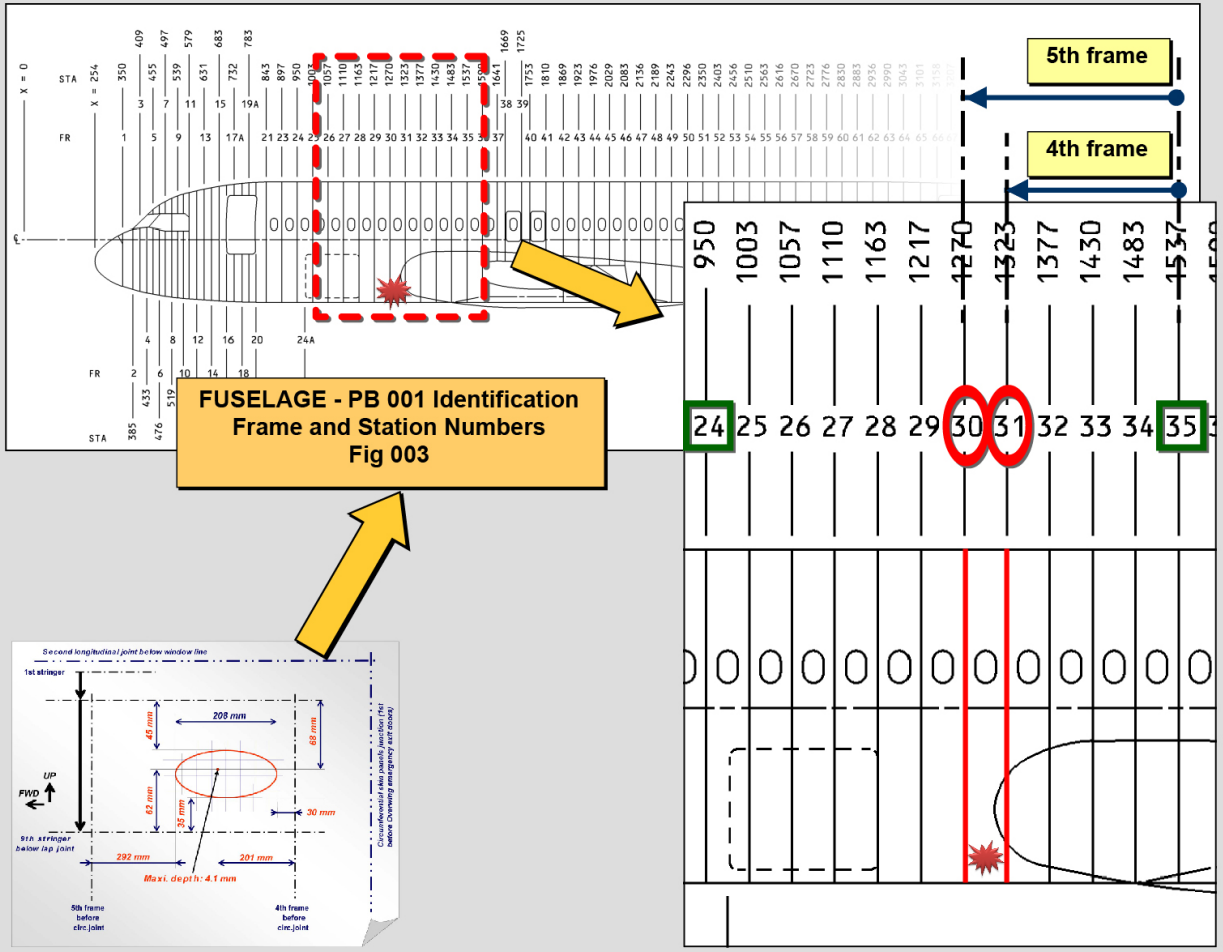
- Damage Identification
- DamageGeographical Location / Measurement
- **Detailed Location**
- Structure Identification
- Allowable Damage Information
- Allowable Damage Usage

Table of contents


Structural Repair Manual
Manual Front Matter
51 - CHAPTER 51 - Standard Practices and Structures
52 - CHAPTER 52 - Doors
53 - CHAPTER 53 - Fuselage
53-00 - FUSELAGE
53-00-00 - FUSELAGE
53-00-00 PB 001 Identification - FUSELAGE (Re
53-00-00 PB 101 Allowable Damage - FUSELAG
53-00-11 - SKIN PLATES
53-00-12 - FRAMES
53-00-13 - STRINGERS AND SKIN STIFFENERS
53-00-14 - FLOOR STRUCTURE
53-00-15 - SEAT TRACKS
53-00-29 - MISCELLANEOUS STRUCTURE
53-02 - FLOOR PANELS
53-10 - NOSE FWD FUSELAGE
53-11 - MAIN STRUCTURE
53-12 - FLOORS PANELS
53-13 - SUPPORT STRUTS
53-16 - FITTINGS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD FUSELAGE
53-21 - MAIN STRUCTURE

Structural Repair Manual:

Mapping data + Frame breakdown => circumferential joints (FR 24 and 35)
=> frames around damage (FR 30 and 31)



DETAILLED LOCATION - CONT'D

UGB13131 - U7ST0M0 - UM51DB000000001

DAMAGE ASSESSMENT EXAMPLE D/O (3)

DETAILLED LOCATION (continued)

CONT'D

This illustration gives the main panel and section configuration. The dent location is between frames 30 and 31,and between the eighth and the ninth below the second longitudinal skin joint.below the cabin window line. The dent affects panel item 9, which is between frames 24 and 35, and between stringers 32 LH side and 41 RH side. This illustration is also related to tables that give information about item numbers in all fuselage sections. The panel item 9 location is in section 13.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

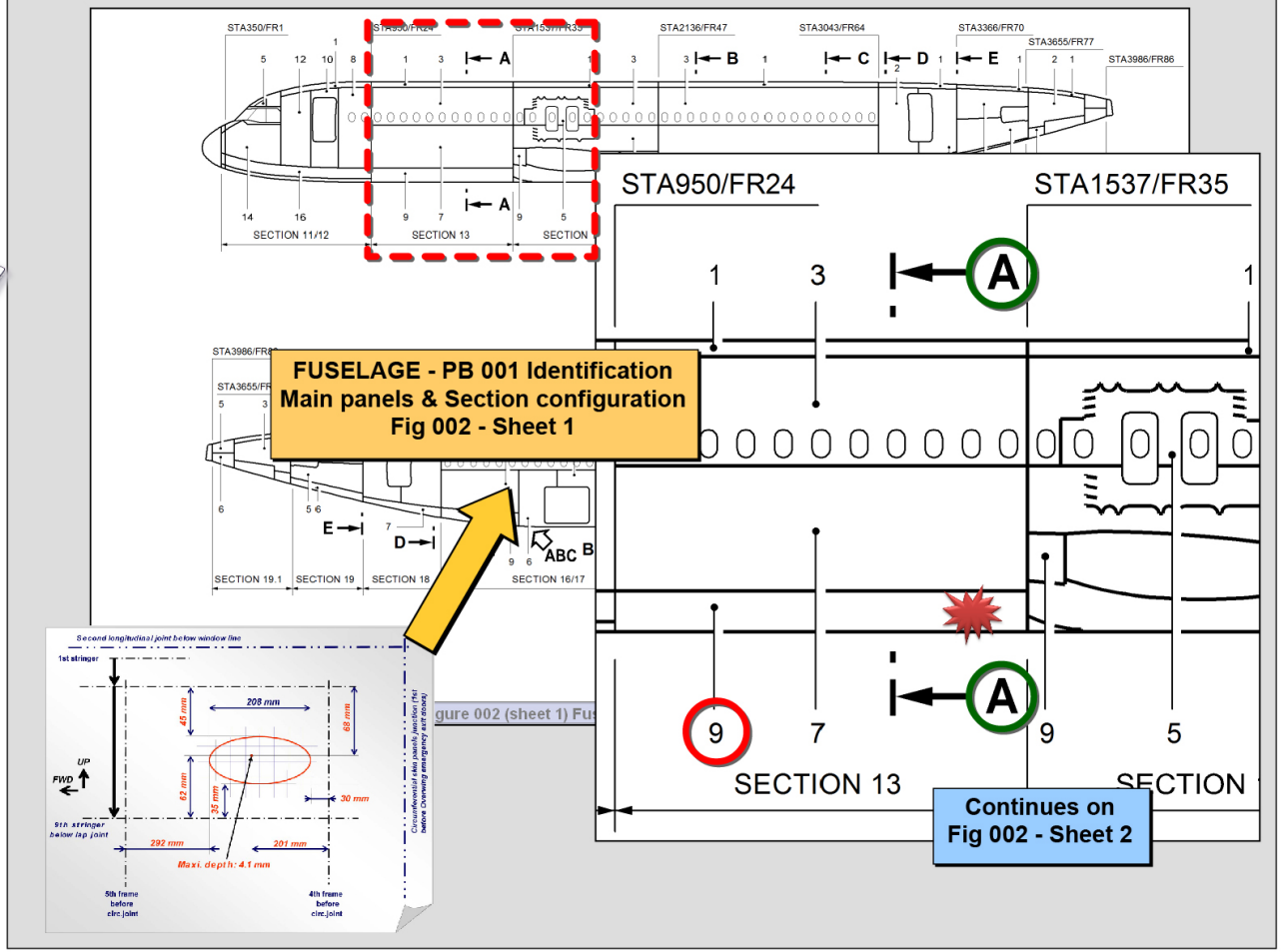
Allowable Damage Usage

Table of contents

- Structural Repair Manual
  - Manual Front Matter
  - 51 - CHAPTER 51 - Standard Practices and Structures
  - 52 - CHAPTER 52 - Doors
  - 53 - CHAPTER 53 - Fuselage
    - 53-00 - FUSELAGE
      - 53-00-00 - FUSELAGE
        - 53-00-00 PB 001 Identification - FUSELAGE (Re
        - 53-00-00 PB 101 Allowable Damage - FUSELAG
      - 53-00-11 - SKIN PLATES
      - 53-00-12 - FRAMES
      - 53-00-13 - STRINGERS AND SKIN STIFFENERS
      - 53-00-14 - FLOOR STRUCTURE
      - 53-00-15 - SEAT TRACKS
      - 53-00-29 - MISCELLANEOUS STRUCTURE
    - 53-02 - FLOOR PANELS
    - 53-10 - NOSE FWD FUSELAGE
    - 53-11 - MAIN STRUCTURE
    - 53-12 - FLOORS PANELS
    - 53-13 - SUPPORT STRUTS
    - 53-16 - FITTINGS
    - 53-19 - MISCELLANEOUS (DRAINS, ...)
    - 53-20 - FORWARD FUSELAGE
    - 53-21 - MAIN STRUCTURE

Structural Repair Manual:

Mapping data + Frame breakdown => affected panel identification
=> stringer number at longitudinal joint



DETAILLED LOCATION - CONT'D

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

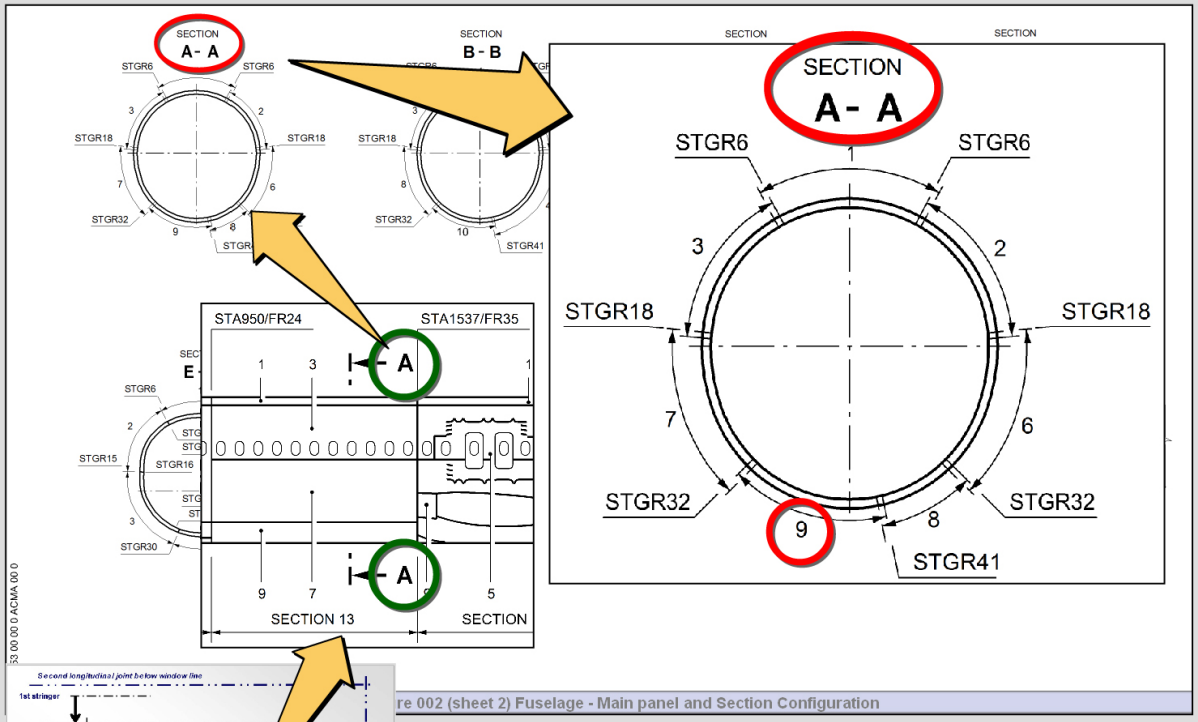
Allowable Damage Usage

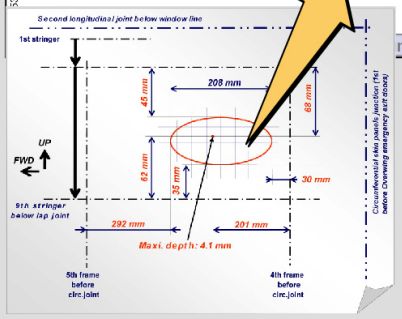
Table of contents

- Structural Repair Manual
  - Manual Front Matter
  - 51 - CHAPTER 51 - Standard Practices and Structures
  - 52 - CHAPTER 52 - Doors
  - 53 - CHAPTER 53 - Fuselage
    - 53-00 - FUSELAGE
      - 53-00-00 - FUSELAGE
        - 53-00-00 PB 001 Identification - FUSELAGE (Re
        - 53-00-00 PB 101 Allowable Damage - FUSELAC
      - 53-00-11 - SKIN PLATES
      - 53-00-12 - FRAMES
      - 53-00-13 - STRINGERS AND SKIN STIFFENERS
      - 53-00-14 - FLOOR STRUCTURE
      - 53-00-15 - SEAT TRACKS
      - 53-00-29 - MISCELLANEOUS STRUCTURE
    - 53-02 - FLOOR PANELS
    - 53-10 - NOSE FWD FUSELAGE
    - 53-11 - MAIN STRUCTURE
    - 53-12 - FLOORS PANELS
    - 53-13 - SUPPORT STRUTS
    - 53-16 - FITTINGS
    - 53-19 - MISCELLANEOUS (DRAINS, ...)
    - 53-20 - FORWARD FUSELAGE
    - 53-21 - MAIN STRUCTURE

Structural Repair Manual:

Mapping data + Frame breakdown => affected panel identification
=> stringer number at longitudinal joint





FUSELAGE - PB 001 Identification
Main panels & Section configuration
Fig 002 - Sheet 2

DETAILLED LOCATION - CONT'D

UGB13131 - U7ST0M0 - UM51DB000000001

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DAMAGE ASSESSMENT EXAMPLE D/O (3)

DETAILLED LOCATION (continued)

CONT'D

The table in section 13 gives information that panel item 9 location is between frames 24 and 35, and between stringers 32 and 41. Caution, the table does not give information if stringers 32 and 41 location are on the LH or RH sides.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

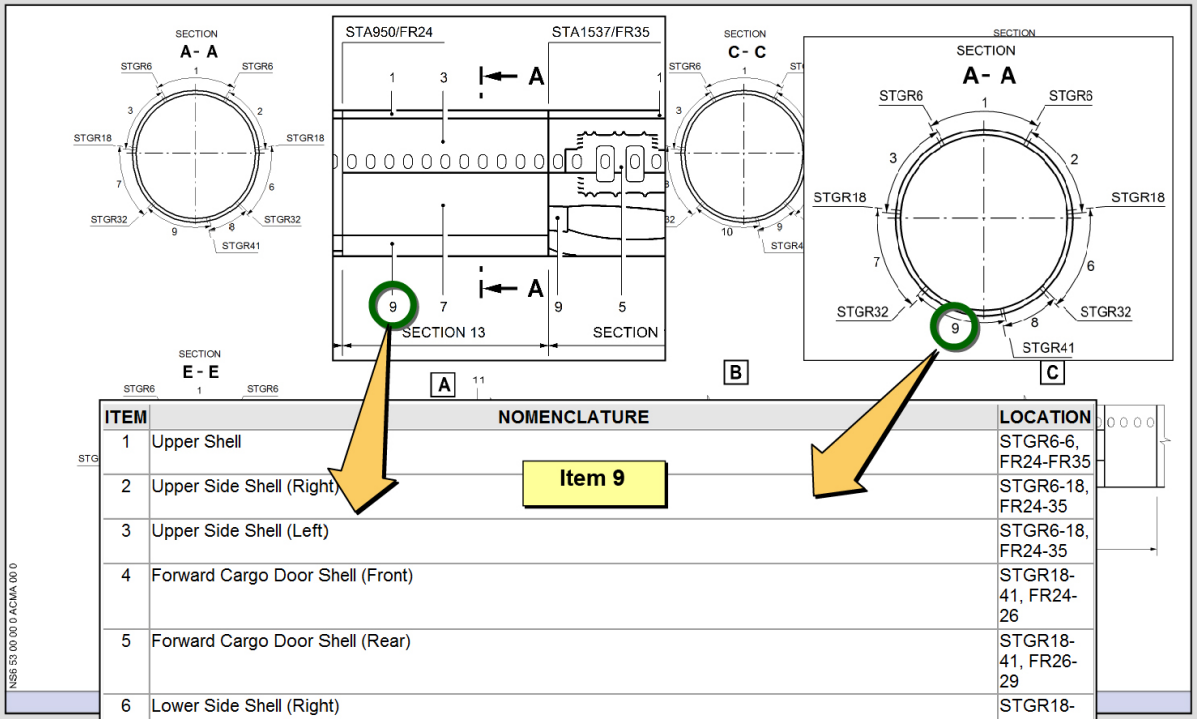
Allowable Damage Usage

Table of contents

- Structural Repair Manual
  - Manual Front Matter
  - 51 - CHAPTER 51 - Standard Practices and Structures
  - 52 - CHAPTER 52 - Doors
  - 53 - CHAPTER 53 - Fuselage
    - 53-00 - FUSELAGE
      - 53-00-00 - FUSELAGE
        - 53-00-00 PB 001 Identification - FUSELAGE (Re
        - 53-00-00 PB 101 Allowable Damage - FUSELA(
      - 53-00-11 - SKIN PLATES
      - 53-00-12 - FRAMES
      - 53-00-13 - STRINGERS AND SKIN STIFFENERS
      - 53-00-14 - FLOOR STRUCTURE
      - 53-00-15 - SEAT TRACKS
      - 53-00-29 - MISCELLANEOUS STRUCTURE
    - 53-02 - FLOOR PANELS
    - 53-10 - NOSE FWD FUSELAGE
    - 53-11 - MAIN STRUCTURE
    - 53-12 - FLOORS PANELS
    - 53-13 - SUPPORT STRUTS
    - 53-16 - FITTINGS
    - 53-19 - MISCELLANEOUS (DRAINS, ...)
    - 53-20 - FORWARD FUSELAGE
    - 53-21 - MAIN STRUCTURE

Structural Repair Manual:

Mapping data + skin panel configuration => Affected panel identification + stringer Nb at longitudinal joints (item 9, between stringers 32 LH and 41 RH)



ITEM	NOMENCLATURE	LOCATION
1	Upper Shell	STGR6-6, FR24-FR35
2	Upper Side Shell (Right)	STGR6-18, FR24-35
3	Upper Side Shell (Left)	STGR6-18, FR24-35
4	Forward Cargo Door Shell (Front)	STGR18-41, FR24-26
5	Forward Cargo Door Shell (Rear)	STGR18-41, FR26-29
6	Lower Side Shell (Right)	STGR18-32, FR29-35
7	Lower Side Shell (Left)	STGR18-32, FR24-35
8	Lower Side Shell (Right)	STGR32-41, FR29-35
9	Lower Side Shell (Left)	STGR32-41, FR24-35

DETAILLED LOCATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

DETAILLED LOCATION (continued)

CONT'D

This illustration is an extract from the AMM 06-30-00, it shows the layout of the stringers in a typical fuselage section. There are longitudinal skin joints at stringers 32 LH side and 41 RH side. Dent location is between the eighth and the ninth below the longitudinal skin joint at stringer 32 LH thus, between stringers 40 LH side and 41 LH side. Caution: the stringer numbers surrounding the dent must be checked and confirmed when looking at the skin panel identification within the relevant fuselage section (SRM page blocks 001 and subsequent), because some stringers can be missing.

UGB13131 - U7ST0M0 - UM51DB000000001

- Damage Identification
- DamageGeographical Location / Measurement
- **Detailed Location**
- Structure Identification
- Allowable Damage Information
- Allowable Damage Usage

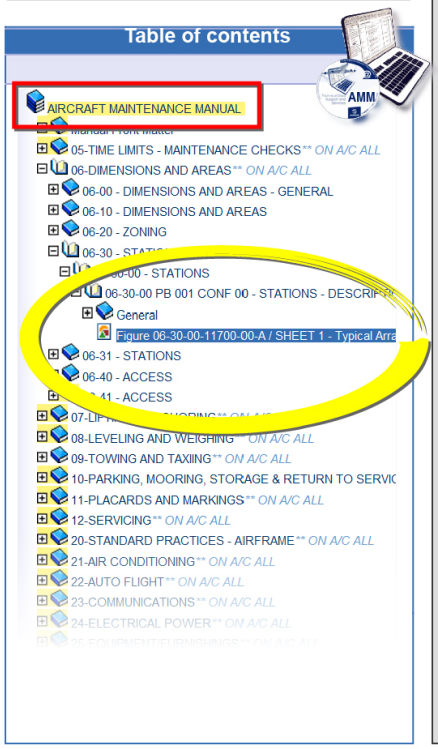
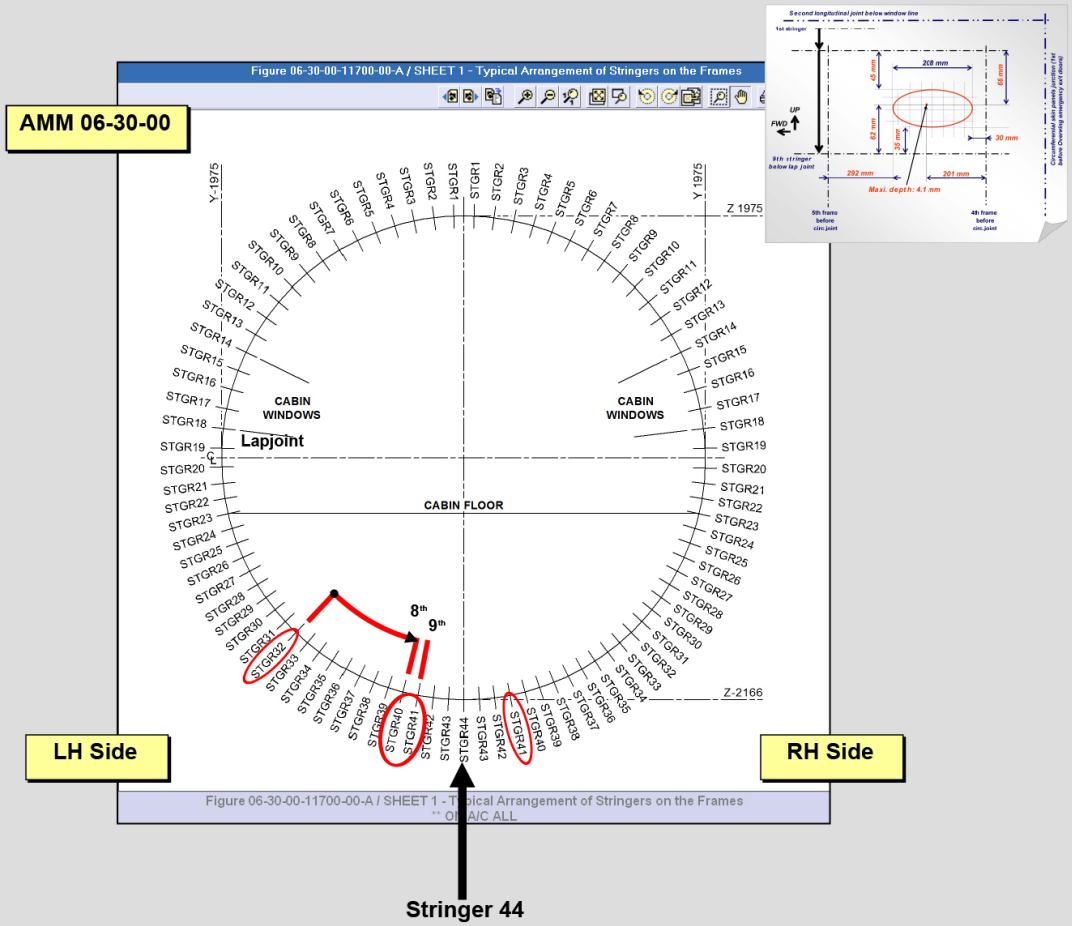


Table of contents
AMM
AIRCRAFT MAINTENANCE MANUAL
05-TIME LIMITS - MAINTENANCE CHECKS** ON A/C ALL
06-DIMENSIONS AND AREAS** ON A/C ALL
06-00 - DIMENSIONS AND AREAS - GENERAL
06-10 - DIMENSIONS AND AREAS
06-20 - ZONING
06-30 - STATIC
-00 - STATIONS
06-30-00 PB 001 CONF 00 - STATIONS - DESCRIP
General
Figure 06-30-00-11700-00-A / SHEET 1 - Typical Arra
06-31 - STATIONS
06-40 - ACCESS
41 - ACCESS
08-LEVELING AND WEIGHING** ON A/C ALL
09-TOWING AND TAXIING** ON A/C ALL
10-PARKING, MOORING, STORAGE & RETURN TO SERVIC
11-PLACARDS AND MARKINGS** ON A/C ALL
12-SERVICING** ON A/C ALL
20-STANDARD PRACTICES - AIRFRAME** ON A/C ALL
21-AIR CONDITIONING** ON A/C ALL
22-AUTO FLIGHT** ON A/C ALL
23-COMMUNICATIONS** ON A/C ALL
24-ELECTRICAL POWER** ON A/C ALL

Aircraft Maintenance Manual

To identify the surrounding stringers, this illustration extracted from the AMM chapter 06 can be used but will have to be confirmed during the detailed location step.
Damage located between stringers 40 LH and 41 LH.



DETAILLED LOCATION - CONT'D

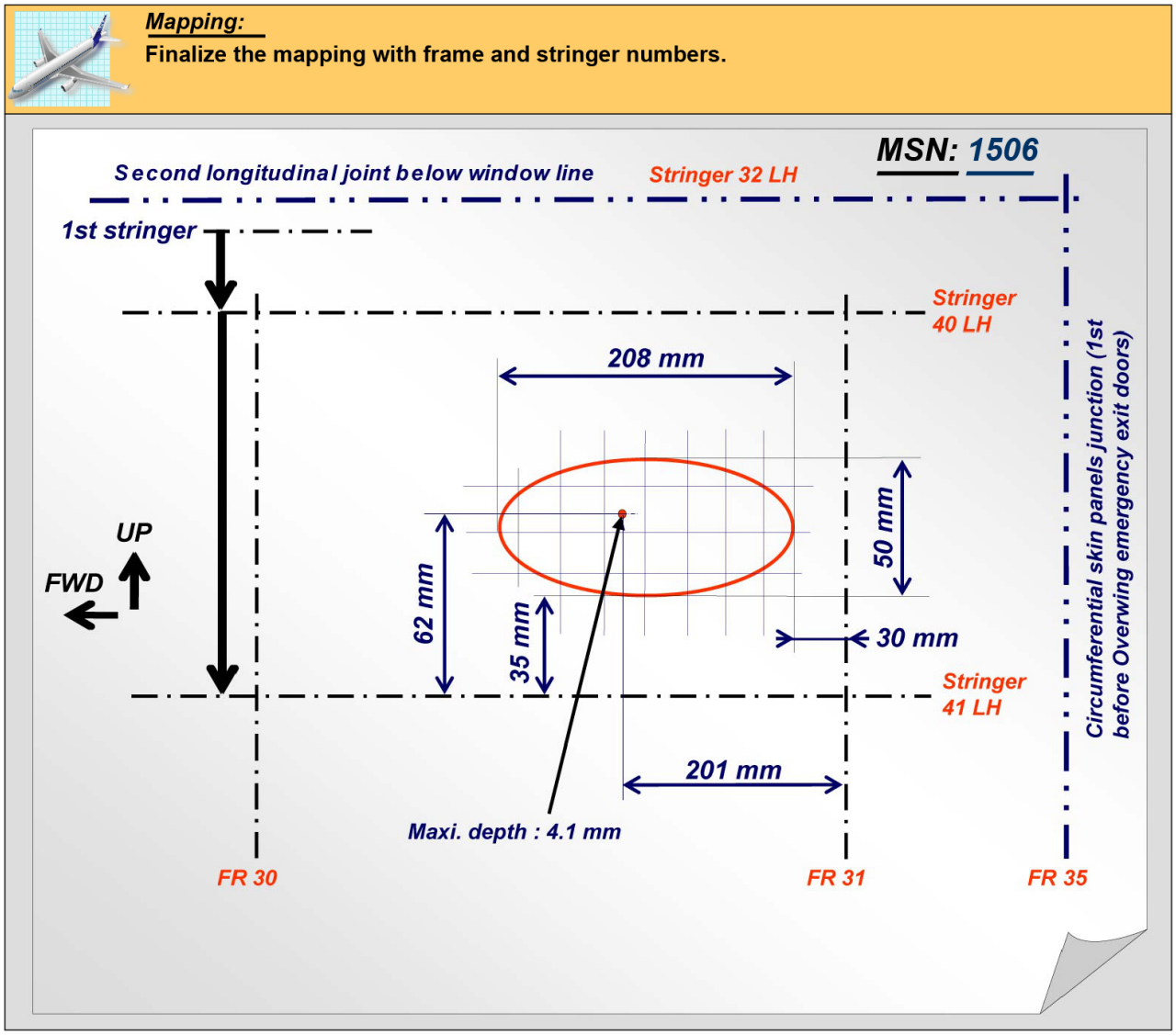
UGB13131 - U7ST0M0 - UM51DB000000001

DAMAGE ASSESSMENT EXAMPLE D/O (3)

DETAILED LOCATION/UPDATING OF MAPPING

We can add the frame (FR 30 and FR 31) and stringers (STGR 40 LH and 41 LH) numbers surrounding the dent, and the frame number at the nearest circumferential skin joint (FR 35) and the stringer number at the nearest longitudinal skin joint (STGR 32 LH).

- Damage Identification
- DamageGeographical Location / Measurement
- **Detailed Location**
- Structure Identification
- Allowable Damage Information
- Allowable Damage Usage



DETAILED LOCATION/UPDATING OF MAPPING

DAMAGE ASSESSMENT EXAMPLE D/O (3)

STRUCTURE IDENTIFICATION

This illustration shows that the circumferential skin joint forward the overwing emergency exit doors is at frame 35. Thus, the dent is in the forward fuselage section between frames 24 and 35; refer to SRM 53-20-00.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

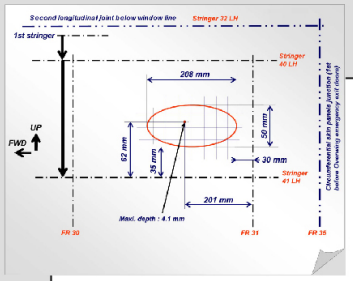
Allowable Damage Usage

Table of contents

- Structural Repair Manual
  - Manual Front Matter
  - 51 - CHAPTER 51 - Standard Practices and Structures
  - 52 - CHAPTER 52
  - CHAPTER 53 - Fuselage
    - 53-00 - FUSELAGE
    - 53-00-00 - FUSELAGE
      - 53-00-00 PB 001 Identification - FUSELAGE (Re
      - 53-00-00 PB 101 Allowable Damage - FUSELA(
    - 53-00-11 - SKIN PLATES
    - 53-00-12 - FRAMES
    - 53-00-13 - STIFFENERS
    - 53-00-14 - FLOOR STRUCTURE
    - 53-00-15 - SEAT TRACKS
    - 53-00-29 - MISCELLANEOUS STRUCTURE
  - 53-02 - FLOOR PANELS
  - 53-10 - NOSE FWD FUSELAGE
  - 53-11 - MAIN STRUCTURE
  - 53-12 - FLOORS PANELS
  - 53-13 - SUPPORT STRUTS
  - 53-16 - FITTINGS
  - 53-19 - MISCELLANEOUS (DRAINS, ...)
  - 53-20 - FORWARD FUSELAGE
  - 53-21 - MAIN STRUCTURE

Structural Repair Manual:

The general illustration of chapter 53-00-00 provides the SRM section (chapter).
You have to refer to the identification of the damaged panel : 53-20-00.



FUSELAGE - PB 001 Identification
Section Division
Fig 001

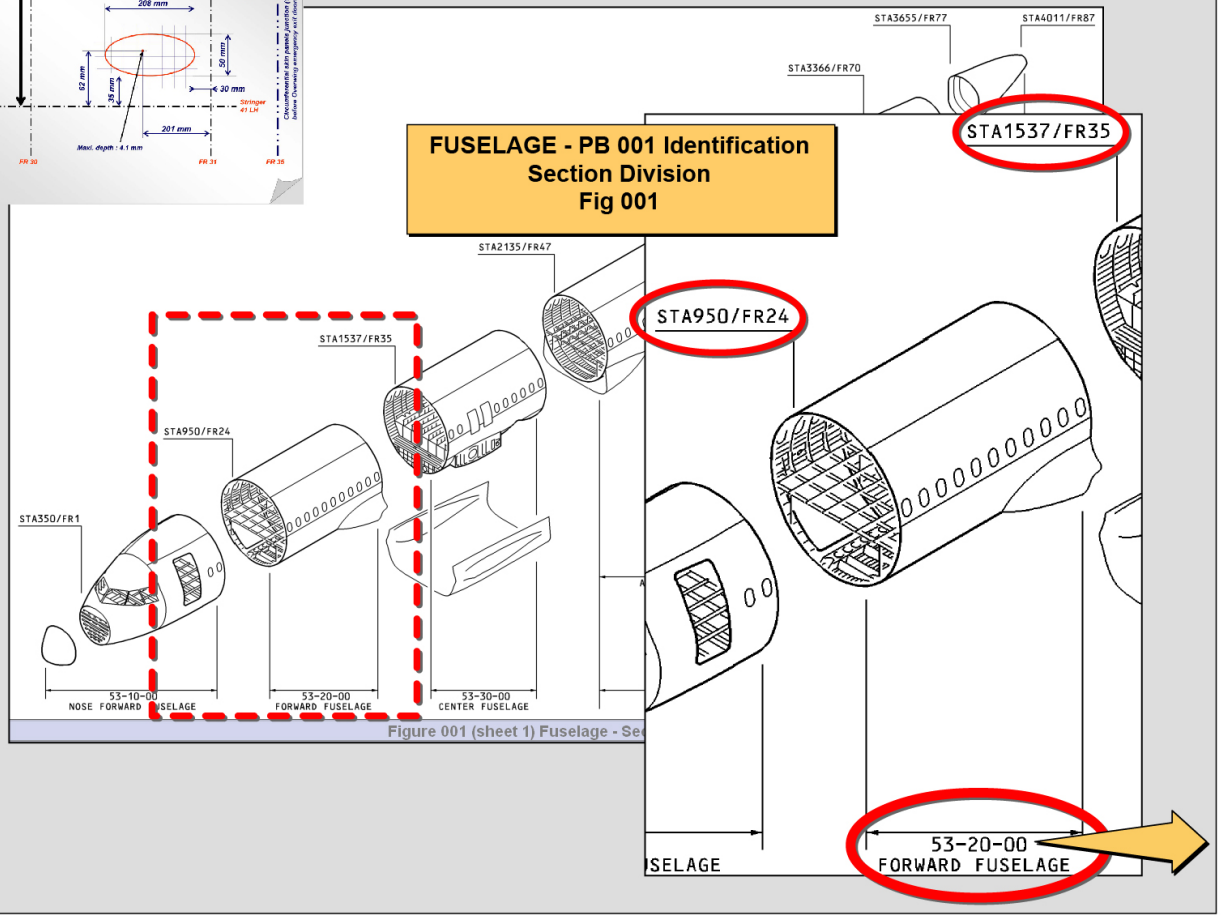


Figure 001 (sheet 1) Fuselage - Se

STRUCTURE IDENTIFICATION

DAMAGE ASSESSMENT EXAMPLE D/O (3)

STRUCTURE IDENTIFICATION (continued)

CONT'D

The skin plates are part of the main structure; refer to 53-21-00.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

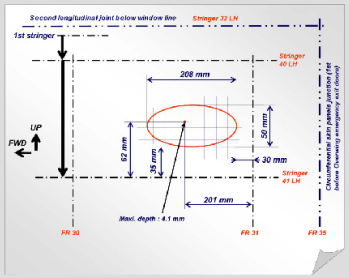
Allowable Damage Usage

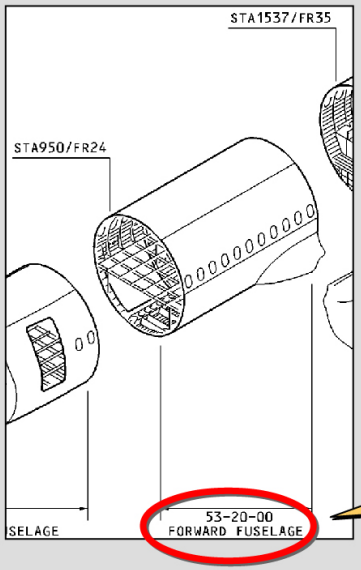
Table of contents

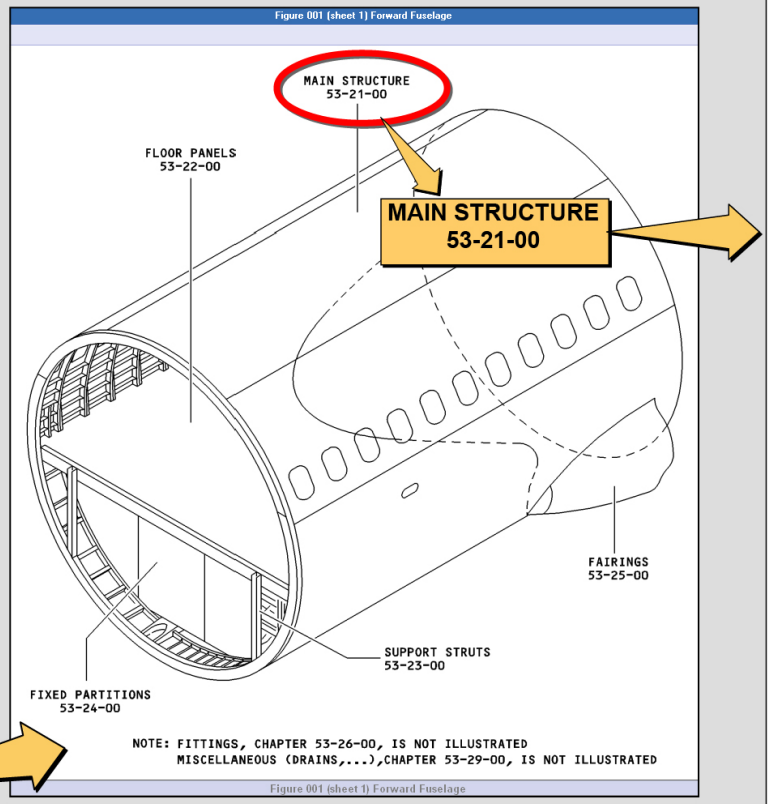
- Structural Repair Manual
  - Manual Front Matter
  - 51 - CHAPTER 51 - Standard Practices and Structures
  - 52 - CHAPTER 52 - Doors
  - 53 - CHAPTER 53 - Fuselage
    - 53-00 - FUSELAGE
    - 53-02 - FLOOR PANELS
    - 53-10 - NOSE FWD FUSELAGE
    - 53-11 - MAIN STRUCTURE
    - 53-12 - FLOORS PANELS
    - 53-13 - SUPPORT STRUTS
    - 53-19 - MISCELLANEOUS (DRAINS, ...)
    - 53-20 - FORWARD FUSELAGE
      - 53-20-00 - FORWARD FUSELAGE
        - 53-20-00 PB 001 Identification - FORWARD FUS
    - 53-21 - MAIN STRUCTURE
    - 53-22 - FLOOR PANELS
    - 53-24 - FIXED PARTITIONS
    - 53-25 - FAIRINGS
    - 53-26 - FITTINGS
    - 53-30 - CENTER FUSELAGE
    - 53-31 - MAIN STRUCTURE

Structural Repair Manual:

As per the general illustration of 53-20-00, refer to 53-21-00 - Forward fuselage.
The affected panel is part of this main structure







STRUCTURE IDENTIFICATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

STRUCTURE IDENTIFICATION (continued)

CONT'D

Following SRM 53-21-00 guidelines, the figure shows that the affected skin panel (skin plate) is item 1. The related nomenclature refers to SRM 53-21-11 for the full identification of the skin panels.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

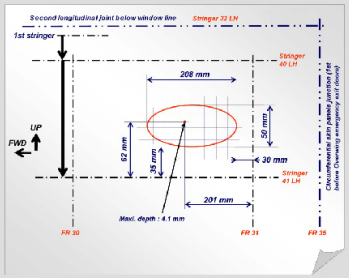
Structure Identification

Allowable Damage Information

Allowable Damage Usage

Structural Repair Manual:

As per the general illustration of 53-21-00 and its associated nomenclature, skin plates are covered within section 53-21-11, directly accessible by hyperlink.



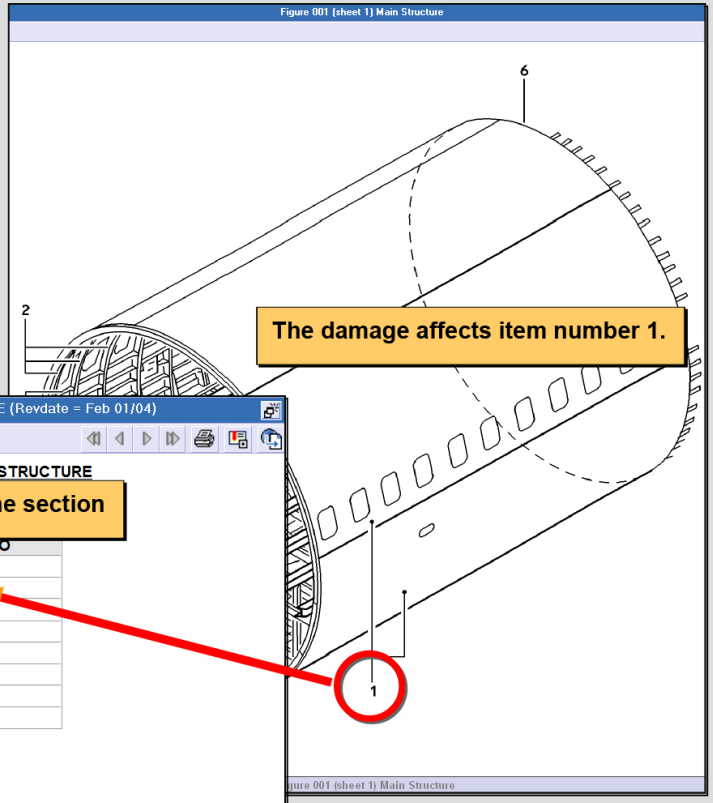


Table of contents

- 53-00 - FUSELAGE
- 53-02 - FLOOR PANELS
- 53-10 - NOSE FWD FUSELAGE
- 53-11 - MAIN STRUCTURE
- 53-12 - FLOORS PANELS
- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
    - 53-21-00 PB 001 Identification - MAIN S
  - 53-21-11 - SKIN PLATES
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE
  - 53-21-29 - MISCELLANEOUS STRUCTUI
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

53-21-00 PB 001 Identification - MAIN STRUCTURE (Revdate = Feb 01/04)

53-21-00 PB 001 Identification - MAIN STRUCTURE

1. Structural Arrangement

Subject within the section

ITEM	NOMENCLATURE	REFER TO
	Structural arrangement	Figure 001
1	Skin plates	53-21-11
2	Frames	53-21-12
3	Stringers and skin stiffeners	53-21-13
4	Floor structure	53-21-14
5	Seat Tracks	53-21-15
6	Junction FWD fuselage/center fuselage	53-21-17
7	Miscellaneous structure (not illustrated)	53-21-29

Figure 001 (sheet 1) Main Structure

Next step 53-21-11

STRUCTURE IDENTIFICATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

STRUCTURE IDENTIFICATION (continued)

CONT'D

All the skin panels (plates) of the forward fuselage are listed within the nomenclature shown at the beginning of the SRM 53-21-11. Using the information collected just before (affected panel: lower side panel - left, between FR 24 & 35), the nomenclature gives the figure number we have to refer to: "Skin plates - LWR parts FR 24 to FR 35: REFER TO Figure 001".

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

53-11 - MAIN STRUCTURE
53-12 - FLOORS PANELS
53-13 - SUPPORT STRUTS
53-16 - FITTINGS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD
MAIN STRUCTURE
53-21-00 - MAIN STRUCTURE
53-21-11 - SKIN PLATES
53-21-11 PB 001 Identification - SKIN PLATES (Revd
53-21-11 PB 101 Allowable Damage - SKIN PLATES
53-21-11 PB 101 - SRI SKIN PLATES (Revdate
11 PB 201 Repairs - SKIN PLATE
(Revdate = No
53-21-12 - FRAMES
53-21-13 - STRINGERS AND SKIN STIFFENERS
53-21-14 - FLOOR STRUCTURE
53-21-15 - SEAT TRACKS
53-21-17 - JUNCTION - FWD FUSELAGE/CENTER FU
53-21-29 - MISCELLANEOUS STRUCTURE
53-22 - FLOOR PANELS

Structural Repair Manual:

SRM 53-21-11 lists the different skin plates of this fuselage section.
The NOMENCLATURE gives a link to the figure number we have to refer to :
"Skin plates - LWR parts LH FR24 to FR 35 / Figure 001"

53-21-11 PB 001 Identification - SKIN PLATES (Revdate = May 01/12)

53-21-11 PB 001 Identification - SKIN PLATES

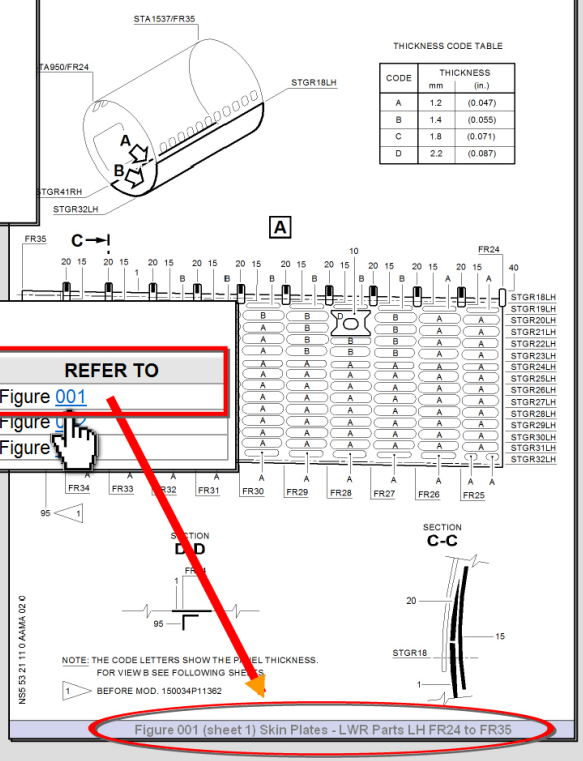
1. Skin Plates - Identification Scheme

ITEM	NOMENCLATURE	REFER TO
-	Skin plates - LWR parts LH FR24 to FR35	Figure 001
-	Skin plates - LWR parts RH FR24 to FR35	Figure 002
-	Skin plates -UPR parts FR24 to FR35	Figure 003

NOTE: Refer to Chapter 53-20-00 Pageblock 001 , where you can find the Modification/Service Bulletin List.

Figure 001 (sheet 1) Skin Plates - LWR Parts LH FR24 to FR35
Figure 001 (sheet 2) Skin Plates - LWR Parts LH FR24 to FR35
Figure 001 (sheet 3) Skin Plates - LWR Parts LH FR24 to FR35
Figure 001 (sheet 4) Skin Plates - LWR Parts LH FR24 to FR35
Figure 001 (sheet 5) Skin Plates - LWR Parts LH FR24 to FR35

Figure 001 (sheet 1) Skin Plates - LWR Parts LH FR24 to FR35



1. Skin Plates - Identification Scheme

ITEM	NOMENCLATURE	REFER TO
-	Skin plates - LWR parts LH FR24 to FR35	Figure 001
-	Skin plates - LWR parts RH FR24 to FR35	Figure
-	Skin plates -UPR parts FR24 to FR35	Figure

STRUCTURE IDENTIFICATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

STRUCTURE IDENTIFICATION (continued)

CONT'D

As mentioned in the previous page, figure 001 has to be considered. There are different versions of the panels, showing the different evolutions (sheet 1 to 5). Find the applicable version of the panel.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

53-11 - MAIN STRUCTURE
53-12 - FLOORS PANELS
53-13 - SUPPORT STRUTS
53-16 - FITTINGS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD FUSELAGE
53-21 - MAIN STRUCTURE
53-21-00 - MAIN STRUCTURE
53-21-11 - SKIN PLATES
53-21-11 PB 001 Identification - SKIN PLATES (Revd
53-21-11 PB 101 Allowable Damage - SKIN PLATES
53-21-11 PB 101 - SRI SKIN PLATES (Revdate = Au
53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
53-21-11 PB 201 - SRI SKIN PLATES (Revdate = No
53-21-12 - FRAMES
53-21-13 - STRINGERS AND SKIN STIFFENERS
53-21-14 - FLOOR STRUCTURE
53-21-15 - SEAT TRACKS
53-21-17 - JUNCTION - FWD FUSELAGE/CENTER FU
53-21-29 - MISCELLANEOUS STRUCTURE
53-22 - FLOOR PANELS

Structural Repair Manual:

There are different versions of the panels, showing the different evolutions (modifications).
The next step of the investigation is to find out the applicable one.

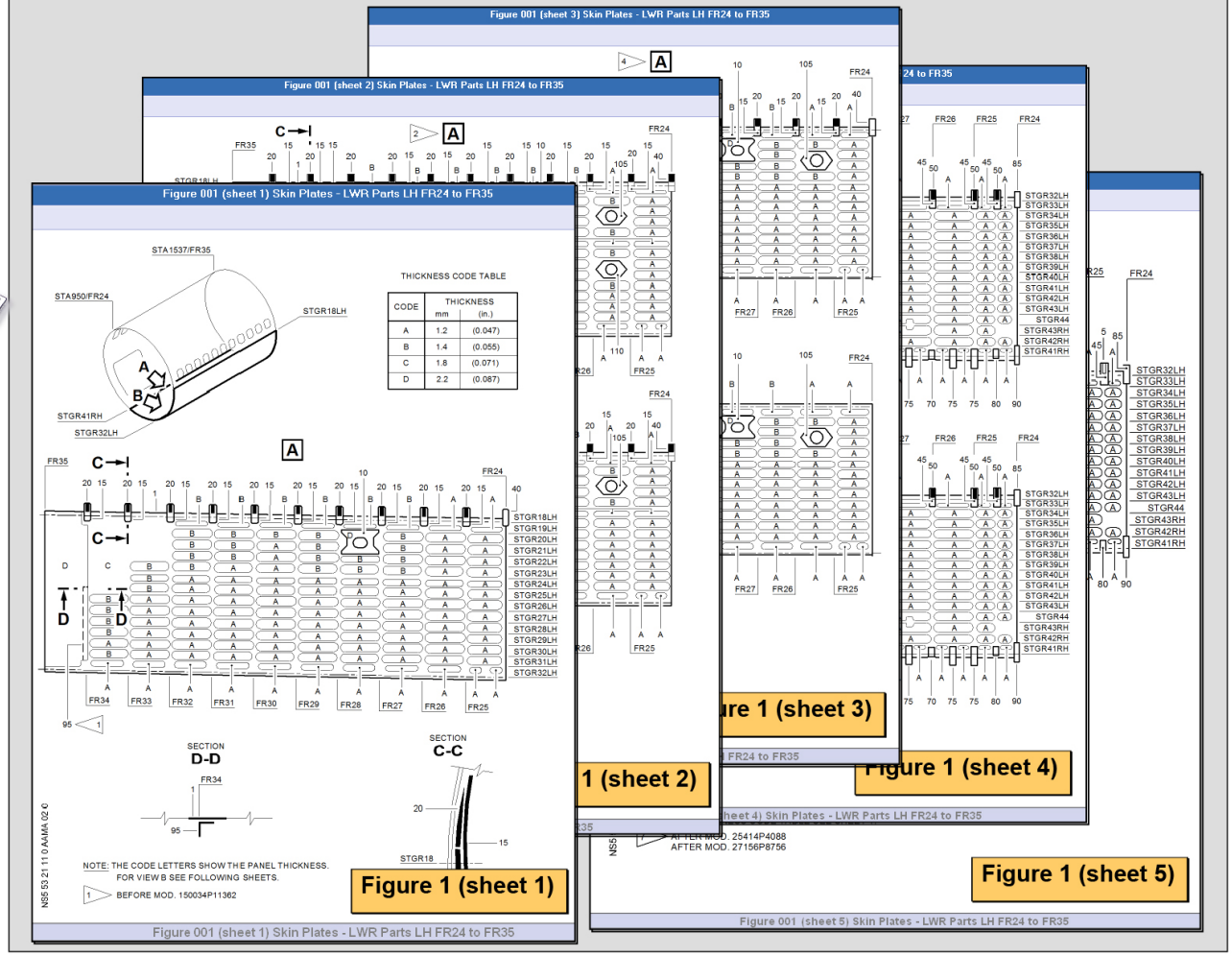


Figure 001 (sheet 3) Skin Plates - LWR Parts LH FR24 to FR35
Figure 001 (sheet 2) Skin Plates - LWR Parts LH FR24 to FR35
Figure 001 (sheet 1) Skin Plates - LWR Parts LH FR24 to FR35
Figure 001 (sheet 5) Skin Plates - LWR Parts LH FR24 to FR35
THICKNESS CODE TABLE
CODE
THICKNESS mm (in.)
A 1.2 (0.047)
B 1.4 (0.055)
C 1.8 (0.071)
D 2.2 (0.087)
SECTION D-D
SECTION C-C
NOTE: THE CODE LETTERS SHOW THE PANEL THICKNESS. FOR VIEW B SEE FOLLOWING SHEETS.
BEFORE MOD. 150034P11362
AFTER MOD. 25414P4088
AFTER MOD. 27156P8756
Figure 1 (sheet 1)
Figure 1 (sheet 2)
Figure 1 (sheet 3)
Figure 1 (sheet 4)
Figure 1 (sheet 5)

STRUCTURE IDENTIFICATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

STRUCTURE IDENTIFICATION (continued)

CONT'D

The view A on sheet 1 shows the upper skin panel between STGR 18 LH and 32 LH. The view B on sheet 4 shows the lower skin panel between STGR 32 LH and 41RH. Using the information collected just before (affected panel: lower side panel - left, between STGR 32 LH and 41 RH), the damage location is found on the panel on view B.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

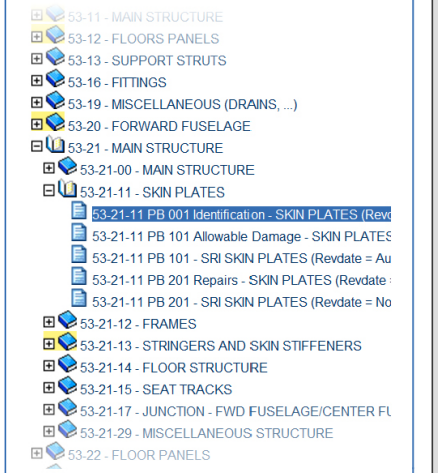
Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

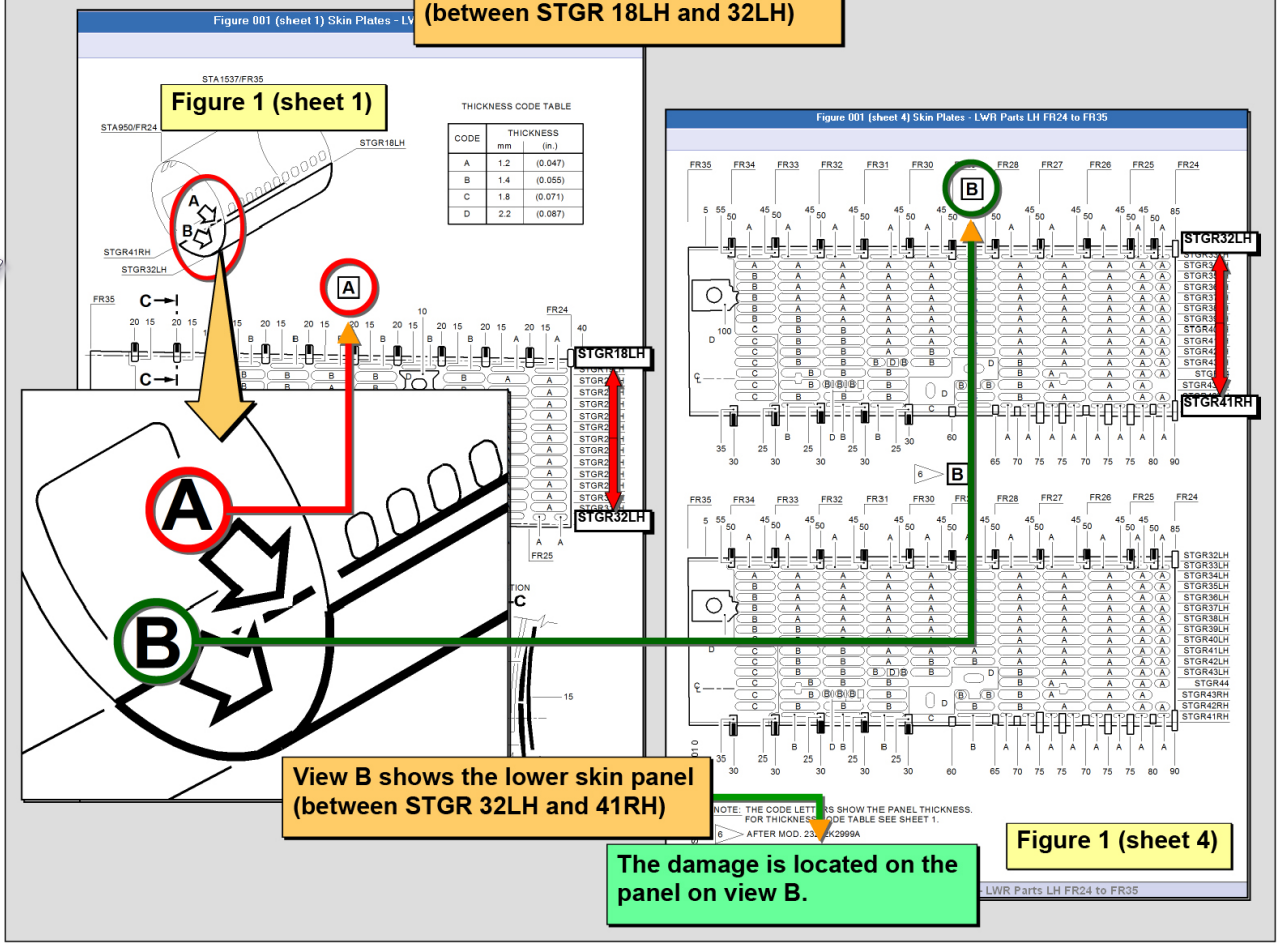
Table of contents


53-11 - MAIN STRUCTURE
53-12 - FLOORS PANELS
53-13 - SUPPORT STRUTS
53-16 - FITTINGS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD FUSELAGE
53-21 - MAIN STRUCTURE
53-21-00 - MAIN STRUCTURE
53-21-11 - SKIN PLATES
53-21-11 PB 001 Identification - SKIN PLATES (Revd
53-21-11 PB 101 Allowable Damage - SKIN PLATES
53-21-11 PB 101 - SRI SKIN PLATES (Revdate = Au
53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
53-21-11 PB 201 - SRI SKIN PLATES (Revdate = No
53-21-12 - FRAMES
53-21-13 - STRINGERS AND SKIN STIFFENERS
53-21-14 - FLOOR STRUCTURE
53-21-15 - SEAT TRACKS
53-21-17 - JUNCTION - FWD FUSELAGE/CENTER FU
53-21-29 - MISCELLANEOUS STRUCTURE
53-22 - FLOOR PANELS

Structural Repair Manual:

Among these two panels, which one is the relevant: basic or evolution ?

View A shows the upper skin panel (between STGR 18LH and 32LH)



View B shows the lower skin panel (between STGR 32LH and 41RH)

The damage is located on the panel on view B.

STRUCTURE IDENTIFICATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

STRUCTURE IDENTIFICATION (continued)

CONT'D

There are three panel configurations for the view B on sheets 4 and 5. Find-out the correct panel configuration.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

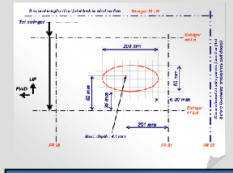
Allowable Damage Usage

Table of contents

- 53-11 - MAIN STRUCTURE
- 53-12 - FLOORS PANELS
- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Revd
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATES
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = Au
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = No
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER FU
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS

Structural Repair Manual:

According to damage preliminary mapping, and visual references, the damage is located on panel identified by view B (between STGR 32LH & 41RH). The goal is now to find-out the correct panel configuration among the three possibilities (illustrations).



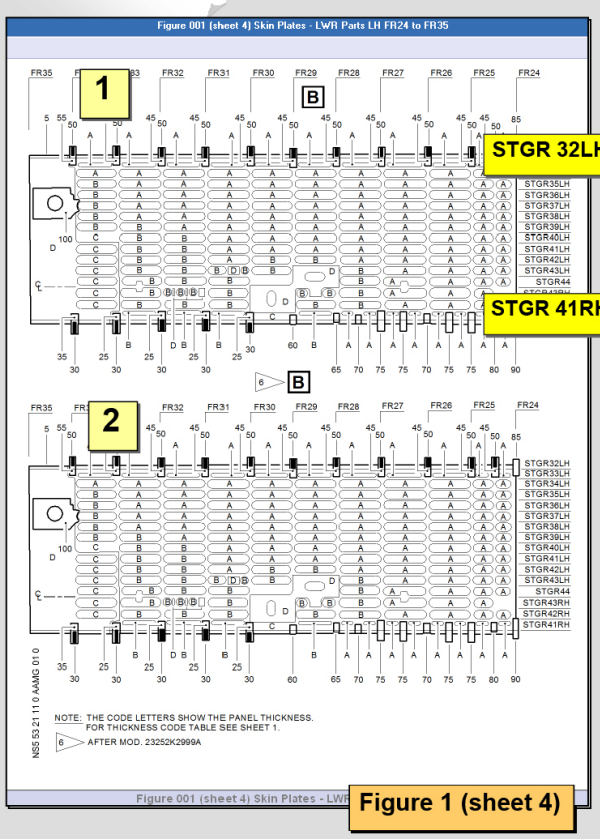


Figure 001 (sheet 4) Skin Plates - LWR Parts LH FR24 to FR35
1
2
STGR 32LH
STGR 41RH
NOTE: THE CODE LETTERS SHOW THE PANEL THICKNESS. FOR THICKNESS CODE TABLE SEE SHEET 1.
6 AFTER MOD. 23252K2999A

Figure 1 (sheet 4)

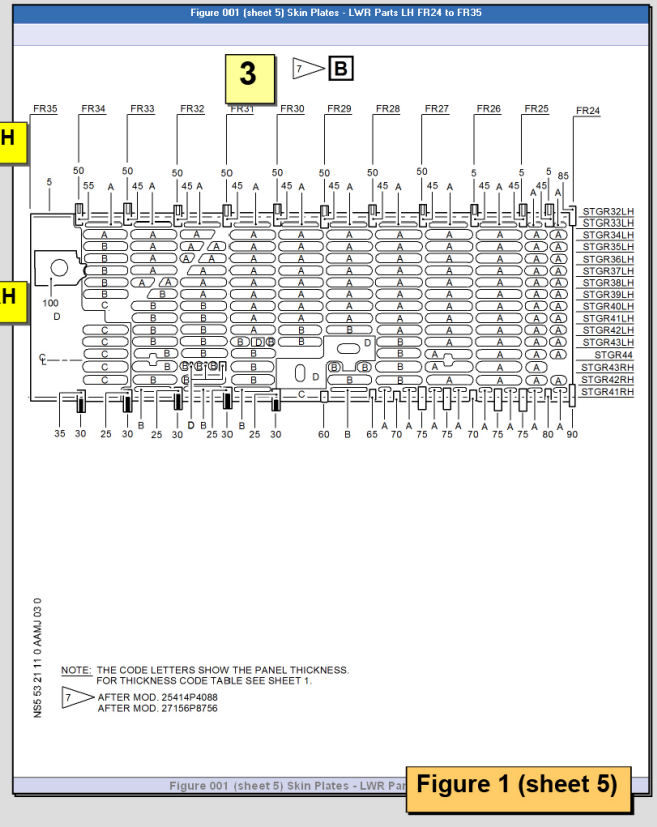


Figure 001 (sheet 5) Skin Plates - LWR Parts LH FR24 to FR35
3
NOTE: THE CODE LETTERS SHOW THE PANEL THICKNESS. FOR THICKNESS CODE TABLE SEE SHEET 1.
7 AFTER MOD. 25414P4088
AFTER MOD. 27156P8756

Figure 1 (sheet 5)

STRUCTURE IDENTIFICATION - CONT'D

UGB13131 - U7ST0M0 - UM51DB000000001

DAMAGE ASSESSMENT EXAMPLE D/O (3)

STRUCTURE IDENTIFICATION (continued)

CONT'D

According to the view B of the figure 1, the skin panel is the item 5.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

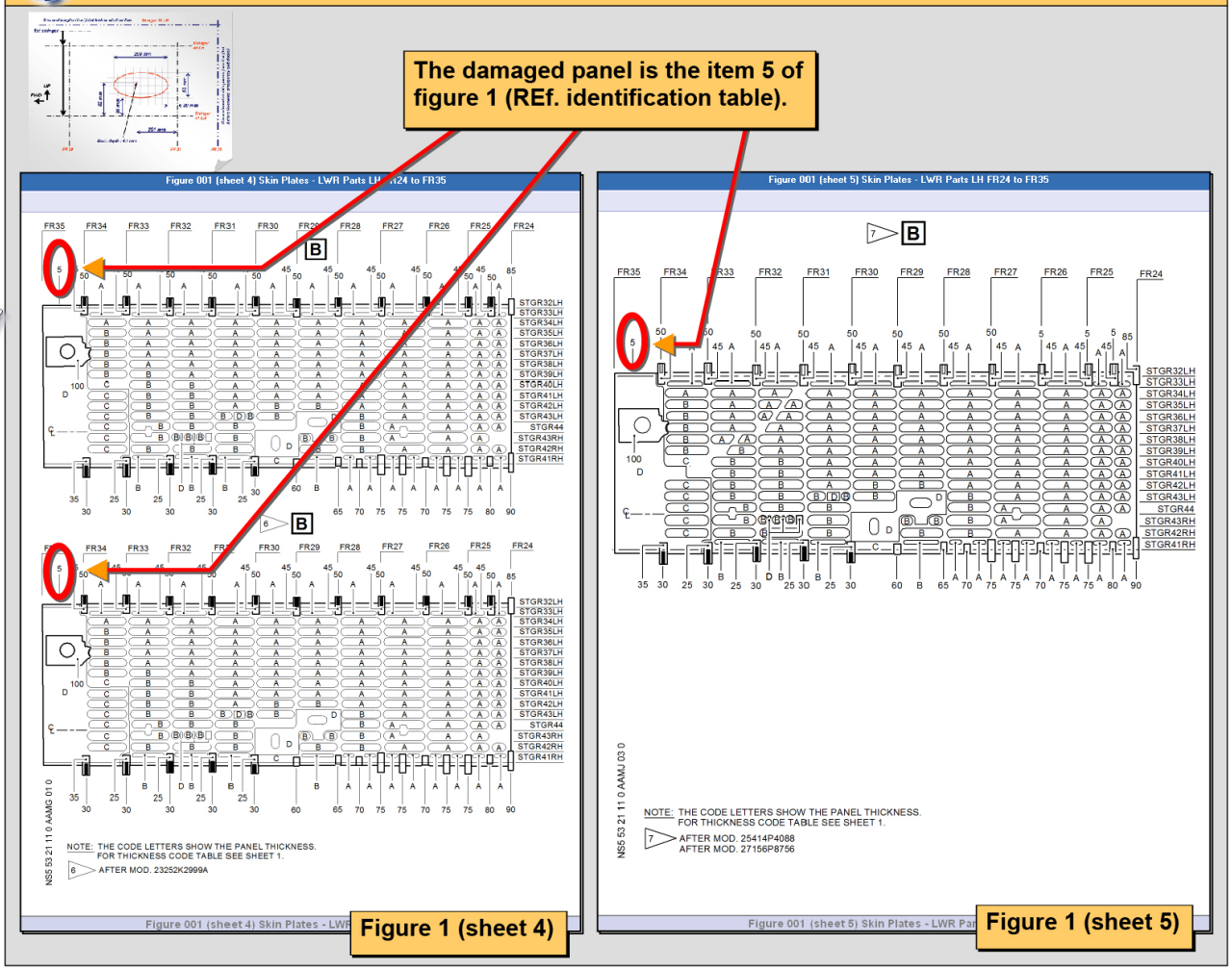
Allowable Damage Usage

Table of contents

53-11 - MAIN STRUCTURE
53-12 - FLOORS PANELS
53-13 - SUPPORT STRUTS
53-16 - FITTINGS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD FUSELAGE
53-21 - MAIN STRUCTURE
53-21-00 - MAIN STRUCTURE
53-21-11 - SKIN PLATES
53-21-11 PB 001 Identification - SKIN PLATES (Revd
53-21-11 PB 101 Allowable Damage - SKIN PLATES
53-21-11 PB 101 - SRI SKIN PLATES (Revdate = Au
53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
53-21-11 PB 201 - SRI SKIN PLATES (Revdate = No
53-21-12 - FRAMES
53-21-13 - STRINGERS AND SKIN STIFFENERS
53-21-14 - FLOOR STRUCTURE
53-21-15 - SEAT TRACKS
53-21-17 - JUNCTION - FWD FUSELAGE/CENTER FU
53-21-29 - MISCELLANEOUS STRUCTURE
53-22 - FLOOR PANELS

Structural Repair Manual:

According to the view B of the figure 1, we determine that the skin panel is item 5.


The damaged panel is the item 5 of figure 1 (REf. identification table).
Figure 001 (sheet 4) Skin Plates - LWR Parts LH FR24 to FR35
Figure 001 (sheet 5) Skin Plates - LWR Parts LH FR24 to FR35
NOTE: THE CODE LETTERS SHOW THE PANEL THICKNESS. FOR THICKNESS CODE TABLE SEE SHEET 1.
AFTER MOD. 23252K2999A
AFTER MOD. 25414P4088
AFTER MOD. 27156P8756
Figure 1 (sheet 4)
Figure 1 (sheet 5)

STRUCTURE IDENTIFICATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

STRUCTURE IDENTIFICATION (continued)

CONT'D

The view B on sheet 4 is linked to flag note 6 and can be installed onto the A/C after the embodiment of modifications 23252K2999A. To identify the actual panel, the modification numbers have to be compared with the service bulletin/modification list shown at the beginning of chapter 53-20-00.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

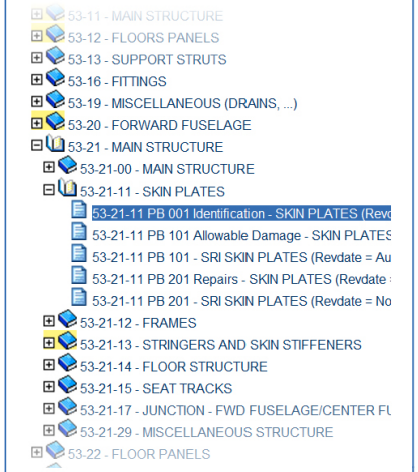
Detailed Location

Structure Identification

Allowable Damage Information

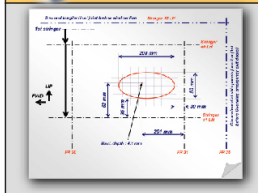
Allowable Damage Usage

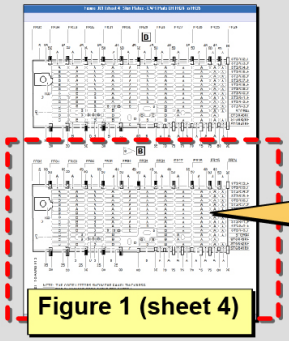
Table of contents

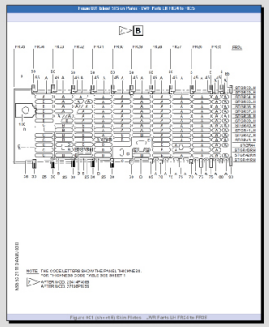

53-11 - MAIN STRUCTURE
53-12 - FLOORS PANELS
53-13 - SUPPORT STRUTS
53-16 - FITTINGS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD FUSELAGE
53-21 - MAIN STRUCTURE
53-21-00 - MAIN STRUCTURE
53-21-11 - SKIN PLATES
53-21-11 PB 001 Identification - SKIN PLATES (Revd
53-21-11 PB 101 Allowable Damage - SKIN PLATES
53-21-11 PB 101 - SRI SKIN PLATES (Revdate = Au
53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
53-21-11 PB 201 - SRI SKIN PLATES (Revdate = No
53-21-12 - FRAMES
53-21-13 - STRINGERS AND SKIN STIFFENERS
53-21-14 - FLOOR STRUCTURE
53-21-15 - SEAT TRACKS
53-21-17 - JUNCTION - FWD FUSELAGE/CENTER FU
53-21-29 - MISCELLANEOUS STRUCTURE
53-22 - FLOOR PANELS

Structural Repair Manual:

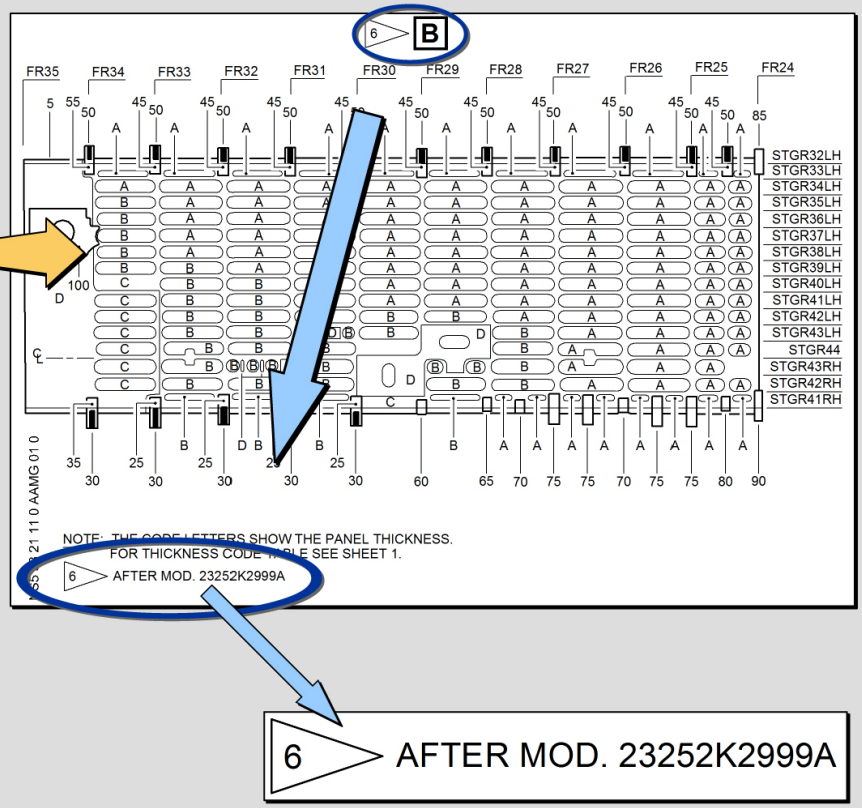
The flag note informs the operator that the second view B configuration is effective to A/C on which modification 23252K2999A has been embodied.
Refer to the modification / SB list at the beginning of SRM 53-20-00 to find effectivity.







View B with flag note 6 : Shows the panel configuration after modification 23252K2999A



STRUCTURE IDENTIFICATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

STRUCTURE IDENTIFICATION (continued)

CONT'D

The view B on sheet 5 is linked to flag note 7 and can be installed onto the A/C after the embodiment of modifications 25414P4088 or 27156P8756.
To identify the actual panel, the modification numbers have to be compared with the service bulletin/modification list shown at the beginning of chapter 53-20-00.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

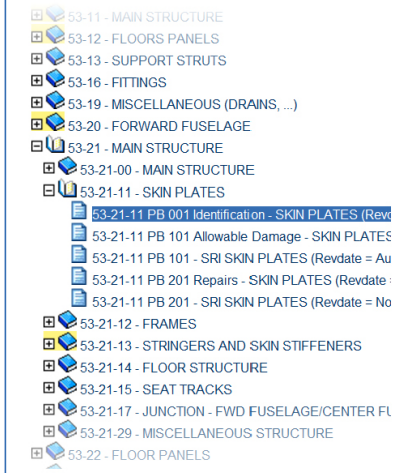
Detailed Location

Structure Identification

Allowable Damage Information

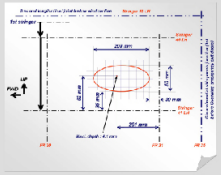
Allowable Damage Usage

Table of contents


53-11 - MAIN STRUCTURE
53-12 - FLOORS PANELS
53-13 - SUPPORT STRUTS
53-16 - FITTINGS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD FUSELAGE
53-21 - MAIN STRUCTURE
53-21-00 - MAIN STRUCTURE
53-21-11 - SKIN PLATES
53-21-11 PB 001 Identification - SKIN PLATES (Revd
53-21-11 PB 101 Allowable Damage - SKIN PLATES
53-21-11 PB 101 - SRI SKIN PLATES (Revdate = Au
53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
53-21-11 PB 201 - SRI SKIN PLATES (Revdate = No
53-21-12 - FRAMES
53-21-13 - STRINGERS AND SKIN STIFFENERS
53-21-14 - FLOOR STRUCTURE
53-21-15 - SEAT TRACKS
53-21-17 - JUNCTION - FWD FUSELAGE/CENTER FU
53-21-29 - MISCELLANEOUS STRUCTURE
53-22 - FLOOR PANELS

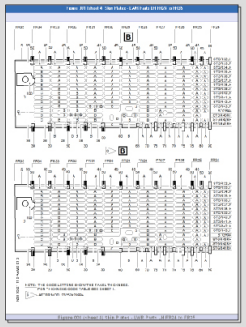
Structural Repair Manual:

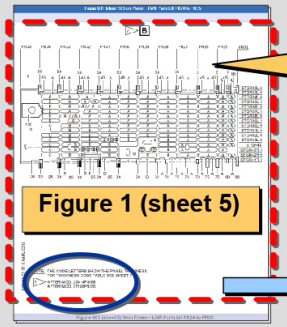
The flag note informs the operator that the third view B configuration is effective to A/C on which modification 25414P4088 / 27156P8756 has been embodied.
Refer to the modification / SB list at the beginning of SRM 53-20-00 to find effectivity.

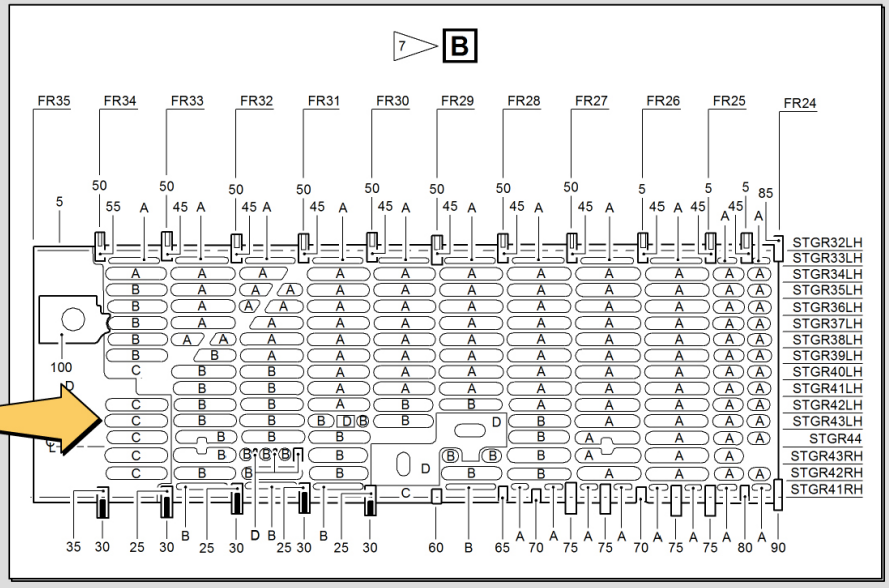


View B with flag note 7 : Shows the panel configuration after modifications 25414P4088 / 27156P8756

Refer to the MOD / SB list at the beginning of SRM 53-20-00 to check the effectivity.







7 AFTER MOD. 25414P4088
AFTER MOD. 27156P8756

STRUCTURE IDENTIFICATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

STRUCTURE IDENTIFICATION (continued)

CONT'D

On the modification/SB list, the Modification 23252K2999A is not installed on MSN 1506. MOD 25414P4088 and 27156P8756 are embodied on MSN 1506.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

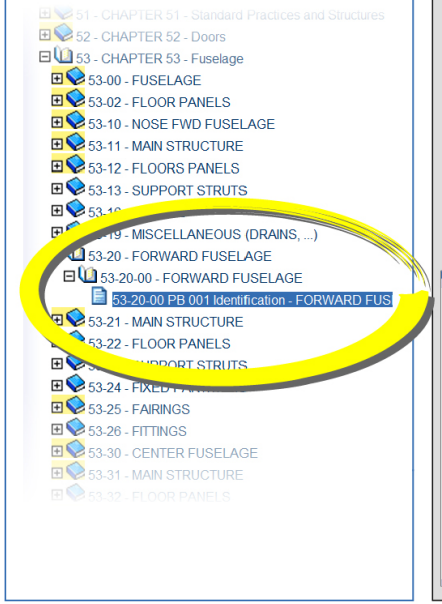
Detailed Location

Structure Identification

Allowable Damage Information

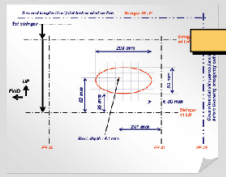
Allowable Damage Usage

Table of contents


51 - CHAPTER 51 - Standard Practices and Structures
52 - CHAPTER 52 - Doors
53 - CHAPTER 53 - Fuselage
53-00 - FUSELAGE
53-02 - FLOOR PANELS
53-10 - NOSE FWD FUSELAGE
53-11 - MAIN STRUCTURE
53-12 - FLOORS PANELS
53-13 - SUPPORT STRUTS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD FUSELAGE
53-20-00 - FORWARD FUSELAGE
53-20-00 PB 001 Identification - FORWARD FUS
53-21 - MAIN STRUCTURE
53-22 - FLOOR PANELS
53-24 - FIXED
53-25 - FAIRINGS
53-26 - FITTINGS
53-30 - CENTER FUSELAGE
53-31 - MAIN STRUCTURE

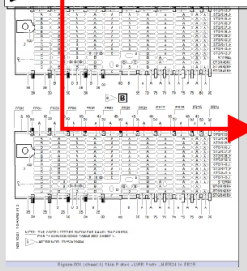
Structural Repair Manual:

To identify the actual panel, the modification numbers (related the flag notes) have to be compared with the Service Bulletin / Modification list located at the beginning of the chapter 53-20-00.



MSN: 1506

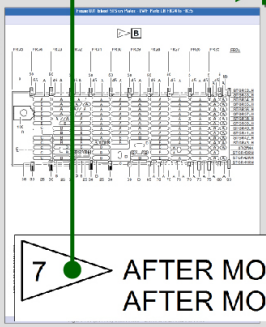
6 AFTER MOD. 23252K2999A



MODIFICATION/PROPOSAL	S	STD	EFFECTIVITY (MANUFACTURER SERIAL NUMBER)	SERVICE BULLETIN
23252K2999		A320	0427,0455,0471,0482-9999	
23252K2999	A	A320	0482,0501,0507,0531,0534,0547,0554	
23252K2999	B	A320	0427,0455,0471,0483,0485-0487,0489-0492,0496,0498,0499, 0500,0503,0504,0506,0508,0510,0512,0523,0527,0528,0530	
			,0592,0594,0596,0601	
25414P4088		A320	0681-9999	
	A	A320	0696-3401,3409-3902	
27156P8756		A320	3199-9999	
27156P8756	A	A320	3199-3418,3422-3431,3435-3440,3446-3468,3473,3475, 3477-3480	
27156P8756	C	A320	3199-3215,3219-3264,3268-3270,3273-3291,3295-3303,	
27156P8756				
27156P8756				

**Modification 23252K2999A does not apply to MSN 1506.
Second illustration is therefore not to be considered.**

**Modifications 25414P4088 & 27156P8756 apply to MSN 1506.
Third illustration is the applicable one.**



7 AFTER MOD. 25414P4088
AFTER MOD. 27156P8756

For our panel, we will then refer to SRM 53-21-11 Figure 1(sheet 5) - Corresponding to note flag 7.

STRUCTURE IDENTIFICATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

STRUCTURE IDENTIFICATION (continued)

CONT'D

On the sheet 5, the dent location is identified with letter code A.
According to the table, the skin thickness in damaged area is 1.2 mm.

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

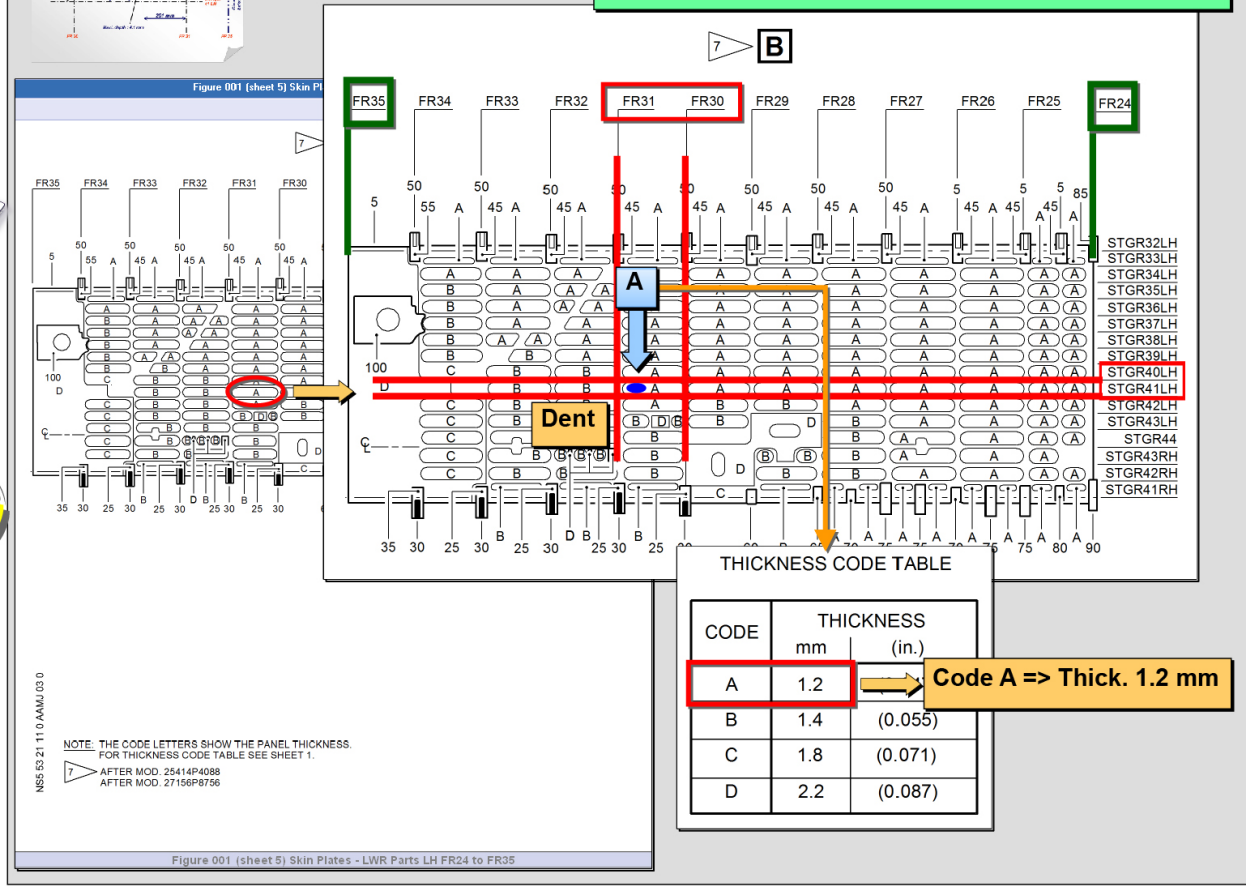
53-11 - MAIN STRUCTURE
53-12 - FLOORS PANELS
53-13 - SUPPORT STRUTS
53-16 - FITTINGS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD FUSELAGE
53-21 - STRUCTURE
53-21-00 - MAIN STRUCTURE
53-21-11 - SKIN PLATES
53-21-11 PB 001 Identification - SKIN PLATES (Revd
53-21-11 PB 101 Allowable Damage - SKIN PLATES
53-21-11 PB 101 - SRI SKIN PLATES (Revdate =
53-21-11 PB 201 Repairs - SKIN PLATES
53-21-12 - FRAMES
53-21-13 - STRINGERS AND SKIN STIFFENERS
53-21-14 - FLOOR STRUCTURE
53-21-15 - SEAT TRACKS
53-21-17 - JUNCTION - FWD FUSELAGE/CENTER FU
53-21-29 - MISCELLANEOUS STRUCTURE
53-22 - FLOOR PANELS

Structural Repair Manual:

The dent is located on an area identified with letter code A.
According to the table, the skin thickness in damaged area is 1.2 mm.

MSN: 1506

Note: This illustration can also be used to confirm and/or find out the frame and stringer numbers at the mapping stage.



STRUCTURE IDENTIFICATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION

GENERAL

To start, refer to the page block 101 of the relevant chapter/section (53-21-11), and start to read carefully the procedure.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Structural Repair Manual:

To start the damage assessment refer to the page block 101 of the relevant chapter / section (53-21-11), and start to read carefully the procedure.

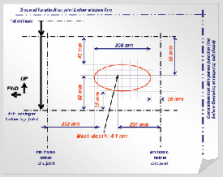
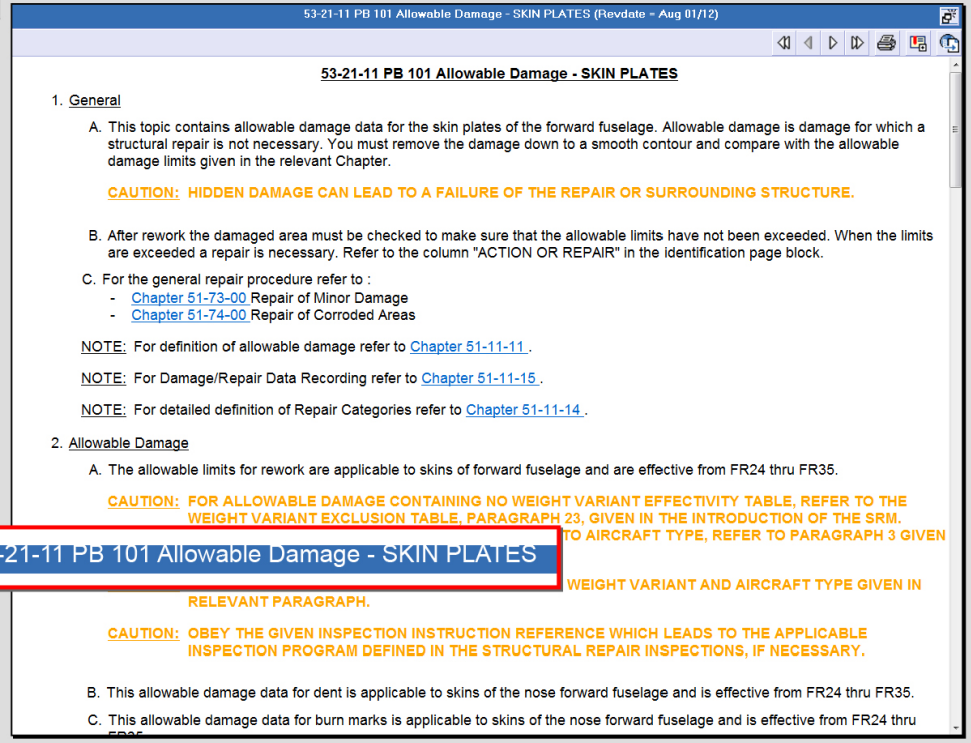


Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRU
  - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdat
    - 11 PB 201 - SRI SKIN PLATES (R
  - 53-21-12 - FR
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS
- 53-25 - FAIRINGS

53-21-11 PB 101 Allowable Damage - SKIN PLATES


53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)
53-21-11 PB 101 Allowable Damage - SKIN PLATES
1. General
A. This topic contains allowable damage data for the skin plates of the forward fuselage. Allowable damage is damage for which a structural repair is not necessary. You must remove the damage down to a smooth contour and compare with the allowable damage limits given in the relevant Chapter.
CAUTION: HIDDEN DAMAGE CAN LEAD TO A FAILURE OF THE REPAIR OR SURROUNDING STRUCTURE.
B. After rework the damaged area must be checked to make sure that the allowable limits have not been exceeded. When the limits are exceeded a repair is necessary. Refer to the column "ACTION OR REPAIR" in the identification page block.
C. For the general repair procedure refer to :
- Chapter 51-73-00 Repair of Minor Damage
- Chapter 51-74-00 Repair of Corroded Areas
NOTE: For definition of allowable damage refer to Chapter 51-11-11 .
NOTE: For Damage/Repair Data Recording refer to Chapter 51-11-15 .
NOTE: For detailed definition of Repair Categories refer to Chapter 51-11-14 .
2. Allowable Damage
A. The allowable limits for rework are applicable to skins of forward fuselage and are effective from FR24 thru FR35.
CAUTION: FOR ALLOWABLE DAMAGE CONTAINING NO WEIGHT VARIANT EFFECTIVITY TABLE, REFER TO THE WEIGHT VARIANT EXCLUSION TABLE, PARAGRAPH 23, GIVEN IN THE INTRODUCTION OF THE SRM.
TO AIRCRAFT TYPE, REFER TO PARAGRAPH 3 GIVEN
WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN RELEVANT PARAGRAPH.
CAUTION: OBEY THE GIVEN INSPECTION INSTRUCTION REFERENCE WHICH LEADS TO THE APPLICABLE INSPECTION PROGRAM DEFINED IN THE STRUCTURAL REPAIR INSPECTIONS, IF NECESSARY.
B. This allowable damage data for dent is applicable to skins of the nose forward fuselage and is effective from FR24 thru FR35.
C. This allowable damage data for burn marks is applicable to skins of the nose forward fuselage and is effective from FR24 thru

ALLOWABLE DAMAGE INFORMATION - GENERAL

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

Read the allowable damage paragraph from top to bottom with particular attention to the caution notes

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

Pay particular attention to the CAUTION notes within the Allowable Damage paragraph.

Careful reading

53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)

53-21-11 PB 101 Allowable Damage - SKIN PLATES

1. General

A. This topic contains allowable damage data for the skin plates of the forward fuselage. Allowable damage is damage for which a structural repair is not necessary. You must remove the damage down to a smooth contour and compare with the allowable damage limits given in the relevant Chapter.

CAUTION: HIDDEN DAMAGE CAN LEAD TO A FAILURE OF THE REPAIR OR SURROUNDING STRUCTURE.

B. After rework the damaged area must be checked to make sure that the allowable limits have not been exceeded. When the limits are exceeded a repair is necessary. Refer to the column "ACTION OR REPAIR" in the identification page block.

C. For the general repair procedure refer to :
- Chapter 51-73-00 Repair of Minor Damage
- Chapter 51-74-00 Repair of Corroded Areas

NOTE: For definition of allowable damage refer to Chapter 51-11-11 .

NOTE: For Damage/Repair Data Recording refer to Chapter 51-11-15 .

NOTE: For detailed definition of Repair Categories refer to Chapter 51-11-14 .

2. Allowable Damage

A. The allowable limits for rework are applicable to skins of forward fuselage and are effective from FR24 thru FR35.

CAUTION: FOR ALLOWABLE DAMAGE CONTAINING NO WEIGHT VARIANT EFFECTIVITY TABLE, REFER TO THE WEIGHT VARIANT EXCLUSION TABLE, PARAGRAPH 23, GIVEN IN THE INTRODUCTION OF THE SRM. FOR ALLOWABLE DAMAGE EFFECTIVITY RELATED TO AIRCRAFT TYPE, REFER TO PARAGRAPH 3 GIVEN IN THE INTRODUCTION OF THE SRM.

CAUTION: OBEY THE ALLOWABLE DAMAGE EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN RELEVANT PARAGRAPH.

CAUTION: OBEY THE GIVEN INSPECTION INSTRUCTION REFERENCE WHICH LEADS TO THE APPLICABLE INSPECTION PROGRAM DEFINED IN THE STRUCTURAL REPAIR INSPECTIONS, IF NECESSARY.

B. This allowable damage data for dent is applicable to skins of the nose forward fuselage and is effective from FR24 thru FR35.

C. This allowable damage data for burn marks is applicable to skins of the nose forward fuselage and is effective from FR24 thru

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

In the allowable damage paragraph, a caution note indicates that allowable damage effectivity per aircraft weight variant has to be verified. So, find-out the weight variant of the aircraft before starting the assessment.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

A CAUTION note indicates that allowable damage effectivity per A/C weignt variant has to be verified. The weight variant to be taken into account for the affected A/C has to be known before starting the assessment.

Careful reading

53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)

53-21-11 PB 101 Allowable Damage - SKIN PLATES

1. General

A. This topic contains allowable damage data for the skin plates of the forward fuselage. Allowable damage is damage for which a structural repair is not necessary. You must remove the damage down to a smooth contour and compare with the allowable damage

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B. After re... When the limits are exc...

C. For the ...
- Cha...
- Cha...

NOTE: For...

NOTE: For Damage/Repair Data Recording refer to Chapter 51-11-15 .

NOTE: For detailed definition of Repair Categories refer to Chapter 51-11-14 .

2. Allowable Damage

A. The allowable limits for rework are applicable to skins of forward fuselage and are effective from FR24 thru FR35.

CAUTION: FOR ALLOWABLE DAMAGE CONTAINING NO WEIGHT VARIANT EFFECTIVITY TABLE, REFER TO THE WEIGHT VARIANT EXCLUSION TABLE, PARAGRAPH 23, GIVEN IN THE INTRODUCTION OF THE SRM. FOR ALLOWABLE DAMAGE EFFECTIVITY RELATED TO AIRCRAFT TYPE, REFER TO PARAGRAPH 3 GIVEN IN THE INTRODUCTION OF THE SRM.

CAUTION: OBEY THE ALLOWABLE DAMAGE EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN RELEVANT PARAGRAPH.

CAUTION: OBEY THE GIVEN INSPECTION INSTRUCTION REFERENCE WHICH LEADS TO THE APPLICABLE INSPECTION PROGRAM DEFINED IN THE STRUCTURAL REPAIR INSPECTIONS, IF NECESSARY.

B. This allowable damage data for dent is applicable to skins of the nose forward fuselage and is effective from FR24 thru FR35.

C. This allowable damage data for burn marks is applicable to skins of the nose forward fuselage and is effective from FR24 thru

Some of the proposed allowable diagrams are only applicable for defined weignt wariants. The weight variant to be taken into account for the concerned A/C should be known before starting the assessment.

This information should come from Engineering or Maintenance control department.

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

In the allowable damage paragraph, a caution indicates that allowable damage could lead to applicable inspection defined in the SRM.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

A CAUTION note indicates that allowable damage effectivity per A/C weight variant has to be verified. The weight variant to be taken into account for the affected A/C has to be known before starting the assessment.

Careful reading

53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)

53-21-11 PB 101 Allowable Damage - SKIN PLATES

1. General

A. This topic contains allowable damage data for the skin plates of the forward fuselage. Allowable damage is damage for which a structural repair is not necessary. You must remove the damage down to a smooth contour and compare with the allowable damag

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NOTE: For definition of allowable damage refer to Chapter 51-11-11 .

NOTE: For Damage/Repair Data Recording refer to Chapter 51-11-15 .

NOTE: For detailed definition of Repair Categories refer to Chapter 51-11-14 .

2. Allowable Damage

A. The allowable limits for rework are applicable to skins of forward fuselage and are effective from FR24 thru FR35.

CAUTION: FOR ALLOWABLE DAMAGE CONTAINING NO WEIGHT VARIANT EFFECTIVITY TABLE, REFER TO THE WEIGHT VARIANT EXCLUSION TABLE, PARAGRAPH 23, GIVEN IN THE INTRODUCTION OF THE SRM. FOR ALLOWABLE DAMAGE EFFECTIVITY RELATED TO AIRCRAFT TYPE, REFER TO PARAGRAPH 3 GIVEN IN THE INTRODUCTION OF THE SRM.

CAUTION: OBEY THE ALLOWABLE DAMAGE EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN RELEVANT PARAGRAPH.

CAUTION: OBEY THE GIVEN INSPECTION INSTRUCTION REFERENCE WHICH LEADS TO THE APPLICABLE INSPECTION PROGRAM DEFINED IN THE STRUCTURAL REPAIR INSPECTIONS, IF NECESSARY.

B. This allowable damage data for dent is applicable to skins of the nose forward fuselage and is effective from FR24 thru FR35.

C. This allowable damage data for burn marks is applicable to skins of the nose forward fuselage and is effective from FR24 thru

Allowable damage could lead to applicable inspection program defined in the Structural Repair Inspections (SRI), if necessary.

Any damage assessment needs to be properly recorded, for SRI task requirement or incoming repair.

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

Obey the inspection instruction reference given in the allowable damage description/criteria table.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

Obey the inspection Instruction Reference if any, given in the Allowable Damage Description / Criteria table.

53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)

3. Allowable Damage Description/Criteria

DESCRIPTION	CRITERIA/TYPE	PARAGRAPH	REPAIR CATEGORY	INSPECTION INSTRUCTION REFERENCE
Skin Plates < 1>	Rework < 1>	4.A. < 1>	Refer to figure 10 < 2>	53-21-11-1-002-00 < 2>
Skin Plates	Dents *	4.B.	Refer to Diagram 103	53-21-11-1-001-00
	Dents **	4.C.	Refer to Diagram 104	-
Skin Plates - Temporary Allowable Damage Limits caused by Lightning Strikes	Burn Marks	4.D.	C	-
Skin Plates on Section 13/14	Rework	4.E.	Refer to Diagram 105	53-21-11-1-003-00
Fuselage Skin - Allowable dent dress-out limits	Dents	4.F.	B	53-21-11-1-004-00

Table 101
< 1> Valid only for FWD Cargo Door Surrounding Panels and for A320-200 WV015 aircraft for Fuselage Sk Plates on Section 13/14.FOR AIRCRAFT OTHER THAN A320-200 WV015, NO FURTHER APPLICATION FOR FUSELAGE SKIN PLAT ON SECTION 13/14 SINCE REVISION DATED AUG 01/07, REFER TO PARAGRAPH 4.E. .
< 2> Valid only for FWD Cargo Door Surrounding Panels.
- * Fulfilling "nearness/form" Criterion.
- ** Out of "nearness/form" Criterion.

NOTE: Dents are considered as "fulfilling nearness/form criterion" or "out of nearness/form criterion" in acc dance with their geometry and their proximity to the nearest adjacent internal structure elements.
This must be determined according to the parameters defined in Figure 104 .
- Dents "fulfilling nearness/form criterion" are those whose edge is 15 mm (0.591 in.) or more away om the nearest fastener line or any cut-out in the skin (R>15 mm (0.591 in)), and whose maximum depth is less or equal to 10% of the tance between the deepest point of

Obey the inspection Instruction Reference if any, given in the Allowable Damage Description / Criteria table.

ALLOWABLE DAMAGE INFORMATION - CONT'D

UGB13131 - U7ST0M0 - UM51DB000000001

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

Find-out the paragraph where the allowable data for the dent are given.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

Refer to the allowable damage description / criteria table (table 101) which will give the paragraph where the allowable data for the dent are given.

53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)

DESCRIPTION	CRITERIA/TYPE	PARAGRAPH	REPAIR CATEGORY	INSPECTION INSTRUCTION REFERENCE
Skin Plates < 1>	Rework < 1>	4.A. < 1>	Refer to figure 103 < 2>	53-21-11-1-002-00 < 2>
Skin Plates	Dents *	4.B.	Refer to Diagram 103	53-21-11-1-001-00
	Dents **	4.C.	Refer to Diagram 104	-
Skin Plates - Temporary Allowable Damage Limits caused by Lightning Strikes	Burn Marks	4.D.	C	-
Skin Plates on Section 13/14	Rework	4.E.	Refer to Diagram 105	53-21-11-1-003-00
Fuselage Skin - Allowable dent dress-out limits	Dents	4.F.	B	53-21-11-1-004-00

Table 101

2. Allowable Damage

A. The allowable limits for rework a

CAUTION: FOR ALLOWABLE VARIANT EXCLUS FOR ALLOWABLE INTRODUCTION C

CAUTION: OBEY THE ALLOV PARAGRAPH.

CAUTION: OBEY THE GIVEN PROGRAM DEFIN

B. This allowable damage data for

C. This allowable damage data for

D. The allowable limits for dent dress-out are applicable to skins of forward fuselage and are effective fro 24 thru FR35.

NOTE: Damage in areas around static ports, pitot probes, total air temperature probes and angle of attac ensors, have to comply with the structural allowable limits given in this chapter and the aerodynamic smoothness requirements gi n in Chapter 53-00-11 Pageblock 101 paragraph 4.

NOTE: For DESCRIPTION and CRITERIA of allowable damage given in this Chapter, refer to Table 101 .

3. Allowable Damage Description/Criteria

DESCRIPTION	CRITERIA/TYPE	PARAGRAPH	REPAIR CATEGORY	INSPECTION INSTRUCTION REFERENCE
Skin Plates < 1>	Rework < 1>	4.A. < 1>	Refer to figure 103 < 2>	53-21-11-1-002-00 < 2>
Skin Plates	Dents *	4.B.	Refer to Diagram 103	53-21-11-1-001-00
	Dents **	4.C.	Refer to Diagram 104	-
Skin Plates - Temporary Allowable Damage Limits caused by Lightning Strikes	Burn Marks	4.D.	C	-

ALLOWABLE DAMAGE INFORMATION - CONT'D

UGB13131 - U7ST0M0 - UM51DB000000001

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

In the table 101, there are 2 cases for the dent :
o paragraph 4.B. if the dent is out of "nearness/form" criterion,
o paragraph 4.C. if the dent is fulfilling "nearness/form" criterion.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

In the allowable damage description / criteria table (101), two cases are considered for dents.
Dents * : refer to paragraph 4.B. Dents ** : refer to paragraph 4.C.

Skin Plates	Dents *	4.B.	Refer to Diagram 103	53-21-11-1-001-00
	Dents **	4.C.	Refer to Diagram 104	-

53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)

3. Allowable Damage Description/Criteria

DESCRIPTION	CRITERIA/TYPE	PARAGRAPH	REPAIR CATEGORY	INSPECTION INSTRUCTION REFERENCE
Skin Plates < 1>	Rework < 1>	4.A. < 1>	Refer to figure 103 < 2>	53-21-11-1-002-00 < 2>
Skin Plates	Dents *	4.B.	Refer to Diagram 103	53-21-11-1-001-00
	Dents **	4.C.	Refer to Diagram 104	-
Skin Plates - Temporary Allowable Damage Limits caused by Lightning Strikes	Burn Marks	4.D.	C	-
Skin Plates on Section 13/14	Rework	4.E.	Refer to Diagram 105	53-21-11-1-003-00
Fuselage Skin - Allowable dent dress-out limits	Dents	4.F.	B	53-21-11-1-004-00

Table 101
< 1> Valid only for FWD Cargo Door Surrounding Panels and for A320-200 WV015 aircraft for Fuselage Skin Plates on Section 13/14.FOR AIRCRAFT OTHER THAN A320-200 WV015, NO FURTHER APPLICATION FOR FUSELAGE SKIN PLATES ON SECTION 13/14 SINCE REVISION DATED AUG 01/07, REFER TO PARAGRAPH 4.E. .
< 2> Valid only for FWD Cargo Door Surrounding Panels.
- * Fulfilling "nearness/form" Criterion.
- ** Out of "nearness/form" Criterion.

NOTE: Dents are considered as "fulfilling nearness/form criterion" or "out of nearness/form criterion" in accordance with their geometry and their proximity to the nearest adjacent internal structure elements.
This must be determined according to the parameters defined in Figure 104 .
- Dents "fulfilling nearness/form criterion" are those edge is 15 mm (0.591 in.) or more away from the nearest fastener line or any cut-out in the skin (R>15 mm (0.591 in)), and whose maximum depth is less or equal to 10% of the distance between the deepest point of

- * Fulfilling "nearness/form" Criterion.

- ** Out of "nearness/form" Criterion.

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

To find-out the appropriate paragraph (4.B. or 4.C.), read the figure 104 to choice if the dent meets the nearnessform criterion or not.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

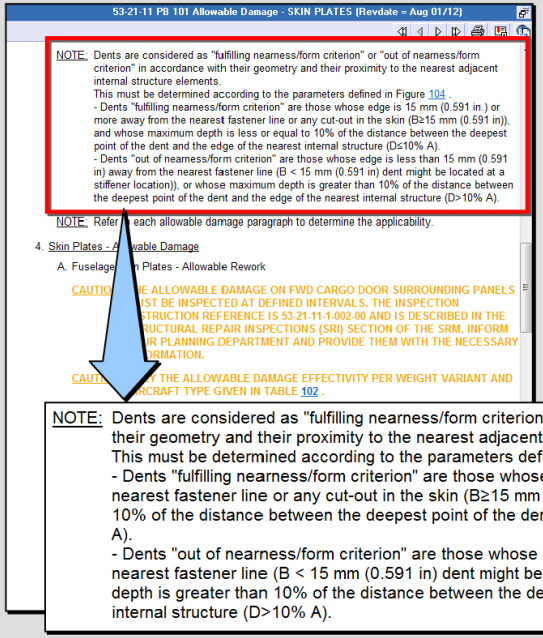
Allowable Damage Usage

Table of contents

- 53-12 - FLOORS PANELS
- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS
- 53-25 - FAIRINGS

Structural Repair Manual:

The first step of the investigation is to define wheter our dent fulfills the nearess / form criterion or not. For this purpose, refer to Fig 104.


53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)
NOTE: Dents are considered as "fulfilling nearness/form criterion" or "out of nearness/form criterion" in accordance with their geometry and their proximity to the nearest adjacent internal structure elements.
This must be determined according to the parameters defined in Figure 104 .
- Dents "fulfilling nearness/form criterion" are those whose edge is 15 mm (0.591 in.) or more away from the nearest fastener line or any cut-out in the skin (B≥15 mm (0.591 in)), and whose maximum depth is less or equal to 10% of the distance between the deepest point of the dent and the edge of the nearest internal structure (D≤10% A).
- Dents "out of nearness/form criterion" are those whose edge is less than 15 mm (0.591 in) away from the nearest fastener line (B < 15 mm (0.591 in) dent might be located at a stiffener location)), or whose maximum depth is greater than 10% of the distance between the deepest point of the dent and the edge of the nearest internal structure (D>10% A).
NOTE: Refer to each allowable damage paragraph to determine the applicability.
4. Skin Plates - Allowable Damage
A. Fuselage Skin Plates - Allowable Rework
NOTE: Dents are considered as "fulfilling nearness/form criterion" or "out of nearness/form criterion" in accordance with their geometry and their proximity to the nearest adjacent internal structure elements.
This must be determined according to the parameters defined in Figure 104 .
- Dents "fulfilling nearness/form criterion" are those whose edge is 15 mm (0.591 in.) or more away from the nearest fastener line or any cut-out in the skin (B≥15 mm (0.591 in)), and whose maximum depth is less or equal to 10% of the distance between the deepest point of the dent and the edge of the nearest internal structure (D≤10% A).
- Dents "out of nearness/form criterion" are those whose edge is less than 15 mm (0.591 in) away from the nearest fastener line (B < 15 mm (0.591 in) dent might be located at a stiffener location)), or whose maximum depth is greater than 10% of the distance between the deepest point of the dent and the edge of the nearest internal structure (D>10% A).

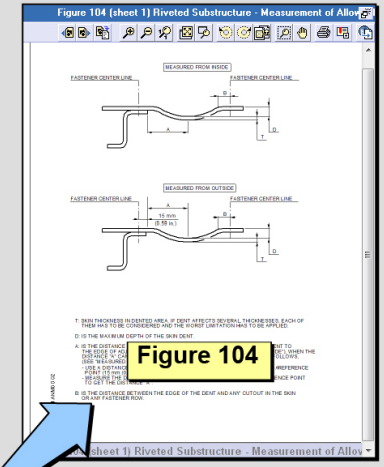


Figure 104 (sheet 1) Riveted Substructure - Measurement of Allow
MEASURED FROM INSIDE
MEASURED FROM OUTSIDE
Figure 104
sheet 1) Riveted Substructure - Measurement of Allow

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

To find-out the appropriate paragraph (4.B. or 4.C.), you have to know the B, D and A value

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

53-12 - FLOORS PANELS
53-13 - SUPPORT STRUTS
53-16 - FITTINGS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD FUSELAGE
53-21 - MAIN STRUCTURE
53-21-00 - MAIN STRUCTURE
53-21-11 - SKIN PLATES
53-21-11 PB 001 Identification - SKIN PLATES (Rev
53-21-11 PB 101 Allowable Damage - SKIN PLATE
53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
53-21-12 - FRAMES
53-21-13 - STRINGERS AND SKIN STIFFENERS
53-21-14 - FLOOR STRUCTURE
53-21-15 - SEAT TRACKS
53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
53-21-29 - MISCELLANEOUS STRUCTURE
53-22 - FLOOR PANELS
53-23 - SUPPORT STRUTS
53-24 - FIXED PARTITIONS
53-25 - FAIRINGS

Structural Repair Manual:

This procedure (figure 104 - Sheet 1) enables the operator to determine the dent nearess / form criterion parameters.

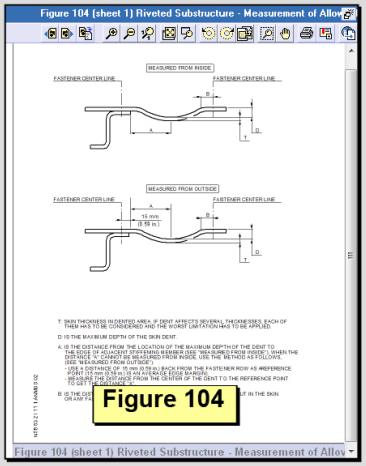
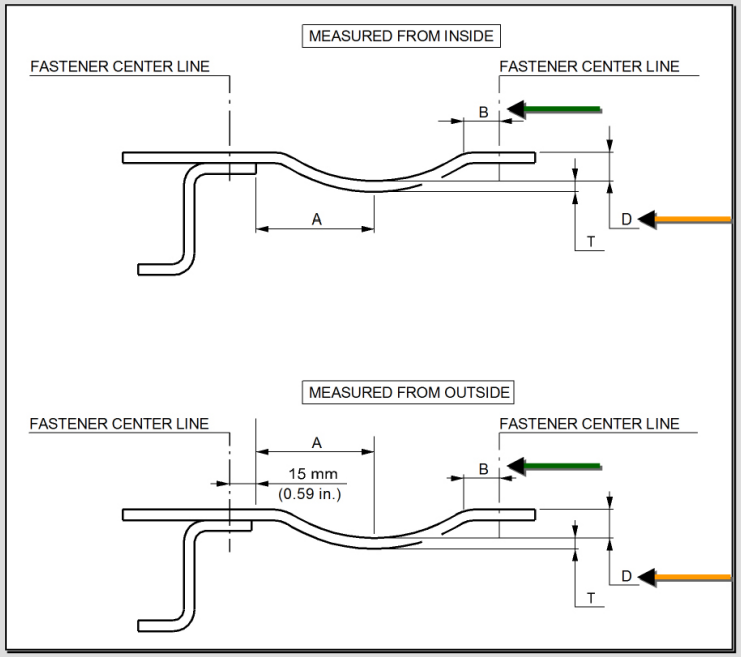


Figure 104 (sheet 1) Riveted Substructure - Measurement of Allow
Figure 104
Figure 104 (sheet 1) Riveted Substructure - Measurement of Allow



Two criterion to be fulfilled

NOTE: Dents are considered as "fulfilling nearness/form criterion" or "out of nearness/form criterion" in accordance with their geometry and their proximity to the nearest adjacent internal structure elements.
This must be determined according to the parameters defined in Figure 104 .
- Dents "fulfilling nearness/form criterion" are those whose edge is 15 mm (0.591 in.) or more away from the nearest fastener line or any cut-out in the skin (B≥15 mm (0.591 in)), and whose maximum depth is less or equal to 10% of the distance between the deepest point of the dent and the edge of the nearest internal structure (D≤10% A).
- Dents "out of nearness/form criterion" are those whose edge is less than 15 mm (0.591 in) away from the nearest fastener line (B < 15 mm (0.591 in) dent might be located at a stiffener location)), or whose maximum depth is greater than 10% of the distance between the deepest point of the dent and the edge of the nearest internal structure (D>10% A).

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

It is possible to measure the dent parameters, from inside or outside

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

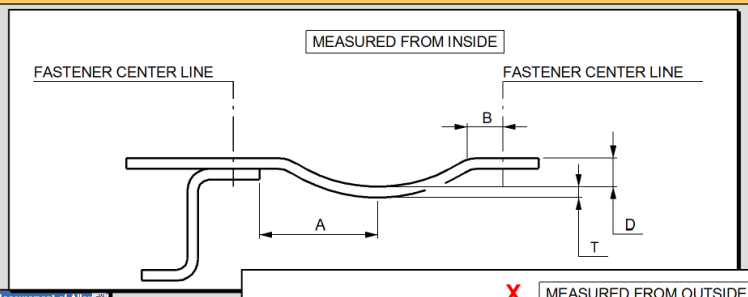
Allowable Damage Usage

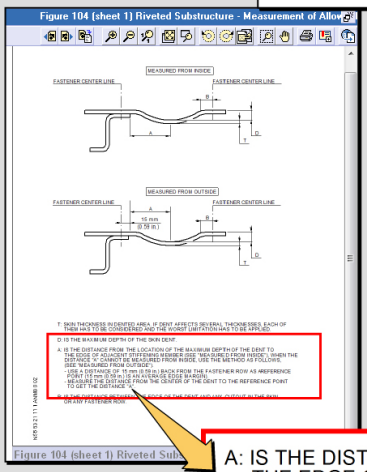
Table of contents

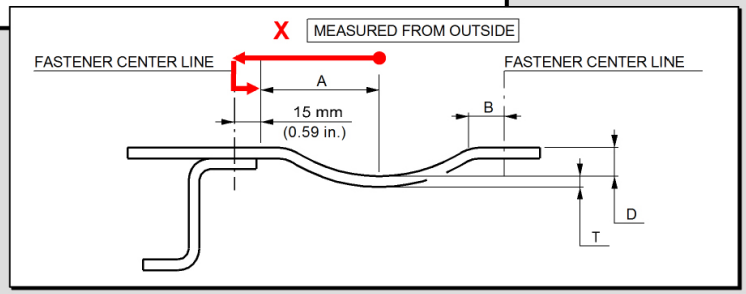
- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

The dent parameters can be measured from inside or outside the A/C.







If measured from outside:
A = X - 15 mm

A: IS THE DISTANCE FROM THE LOCATION OF THE MAXIMUM DEPTH OF THE DENT TO THE EDGE OF ADJACENT STIFFENING MEMBER (SEE "MEASURED FROM INSIDE"), WHEN THE DISTANCE "A" CANNOT BE MEASURED FROM INSIDE, USE THE METHOD AS FOLLOWS, (SEE "MEASURED FROM OUTSIDE").
- USE A DISTANCE OF 15 mm (0.59 in.) BACK FROM THE FASTENER ROW AS AREFERENCE POINT (15 mm (0.59 in.) IS AN AVERAGE EDGE MARGIN).
- MEASURE THE DISTANCE FROM THE CENTER OF THE DENT TO THE REFERENCE POINT TO GET THE DISTANCE "A".

B ≥ 15 mm (0.590 in.) **and** **D ≤ 10% A**

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

Since there is no access from inside, the dent measurement is taken from outside.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

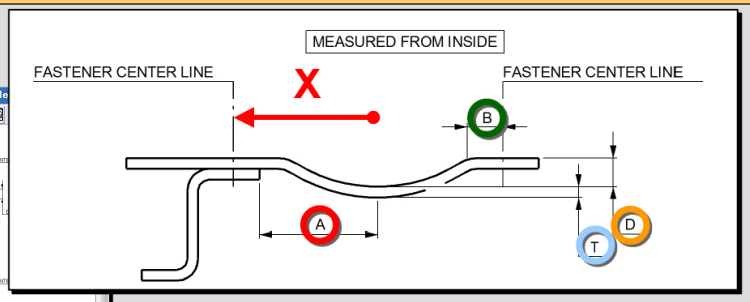
Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

The measurement is taken from the outside, since there is no access from inside.
The following values are deduced from the damage mapping.



A = X - 15 mm

T: SKIN THICKNESS IN DENTED AREA. IF DENT AFFECTS SEVERAL THICKNESSES, EACH OF THEM HAS TO BE CONSIDERED AND THE WORST LIMITATION HAS TO BE APPLIED.

D: IS THE MAXIMUM DEPTH OF THE SKIN DENT.

A: IS THE DISTANCE FROM THE LOCATION OF THE MAXIMUM DEPTH OF THE DENT TO THE EDGE OF ADJACENT STIFFENING MEMBER (SEE "MEASURED FROM INSIDE"), WHEN THE DISTANCE "A" CANNOT BE MEASURED FROM INSIDE, USE THE METHOD AS FOLLOWS, (SEE "MEASURED FROM OUTSIDE").
- USE A DISTANCE OF 15 mm (0.59 in.) BACK FROM THE FASTENER ROW AS AREFERENCE POINT (15 mm (0.59 in.) IS AN AVERAGE EDGE MARGIN).
- MEASURE THE DISTANCE FROM THE CENTER OF THE DENT TO THE REFERENCE POINT TO GET THE DISTANCE "A".

B: IS THE DISTANCE BETWEEN THE EDGE OF THE DENT AND ANY CUTOUT IN THE SKIN OR ANY FASTENER ROW.

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

Since B value is more than 15mm, the first criterion is met.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

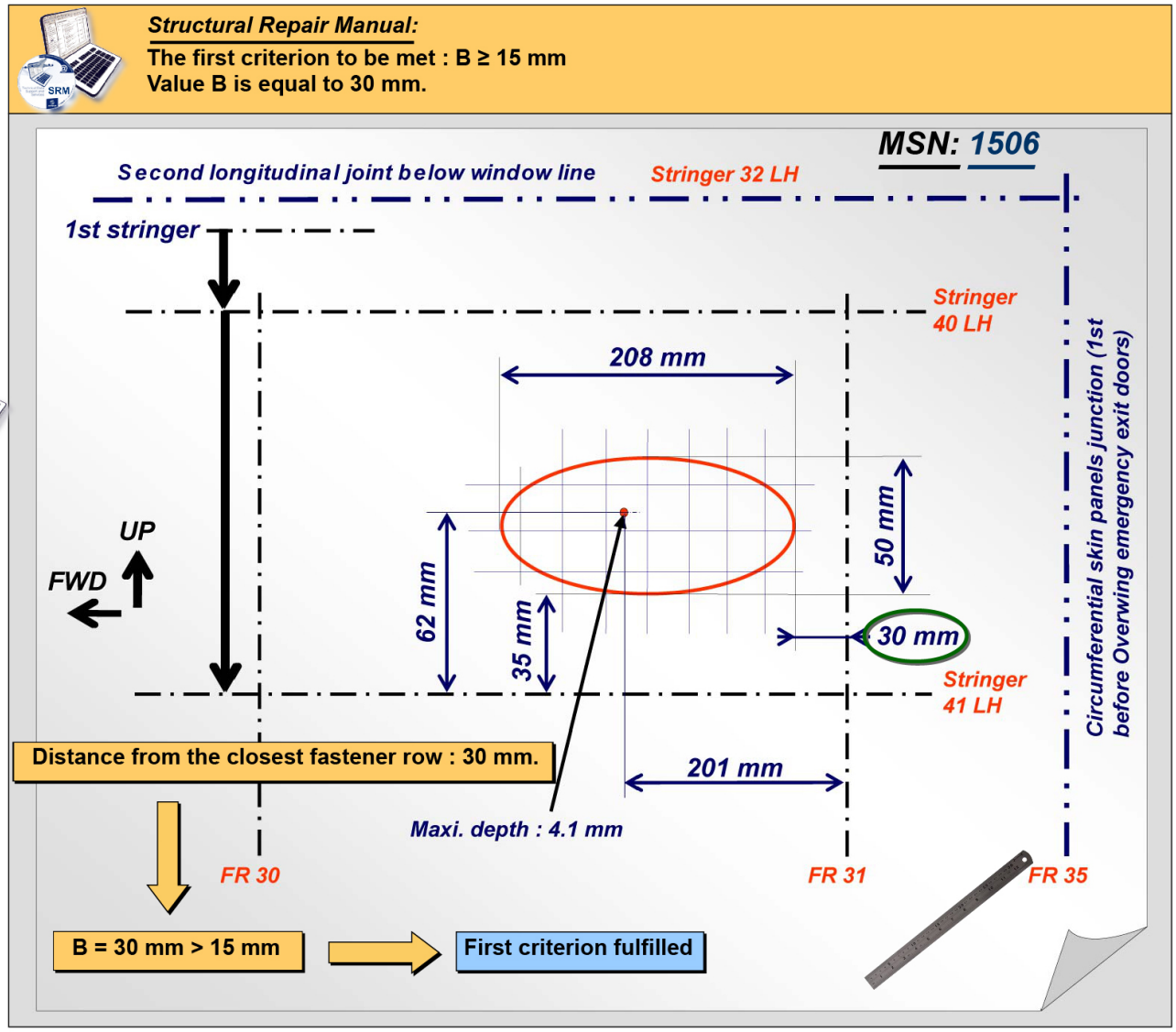
Allowable Damage Usage

Table of contents

53-12 - FLOORS PANELS
53-13 - SUPPORT STRUTS
53-16 - FITTINGS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD FUSELAGE
53-21 - MAIN STRUCTURE
53-21-00 - MAIN STRUCTURE
53-21-11 - SKIN PLATES
53-21-11 PB 001 Identification - SKIN PLATES (Rev
53-21-11 PB 101 Allowable Damage - SKIN PLATE
53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
53-21-12 - FRAMES
53-21-13 - STRINGERS AND SKIN STIFFENERS
53-21-14 - FLOOR STRUCTURE
53-21-15 - SEAT TRACKS
53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
53-21-29 - MISCELLANEOUS STRUCTURE
53-22 - FLOOR PANELS
53-23 - SUPPORT STRUTS
53-24 - FIXED PARTITIONS
53-25 - FAIRINGS

Structural Repair Manual:

The first criterion to be met : B ≥ 15 mm
Value B is equal to 30 mm.



ALLOWABLE DAMAGE INFORMATION - CONT'D

UGB13131 - U7ST0M0 - UM51DB000000001

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

Since D value is lower than 10% of A value, the second criterion is met.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

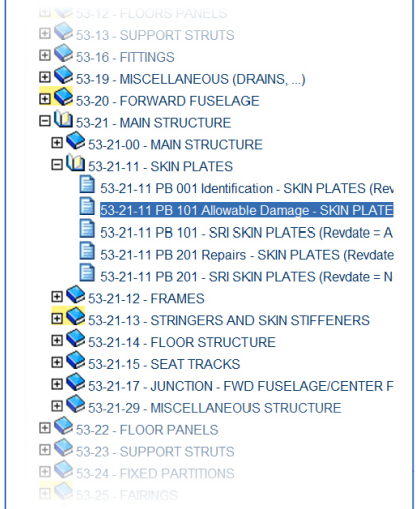
Detailed Location

Structure Identification

Allowable Damage Information

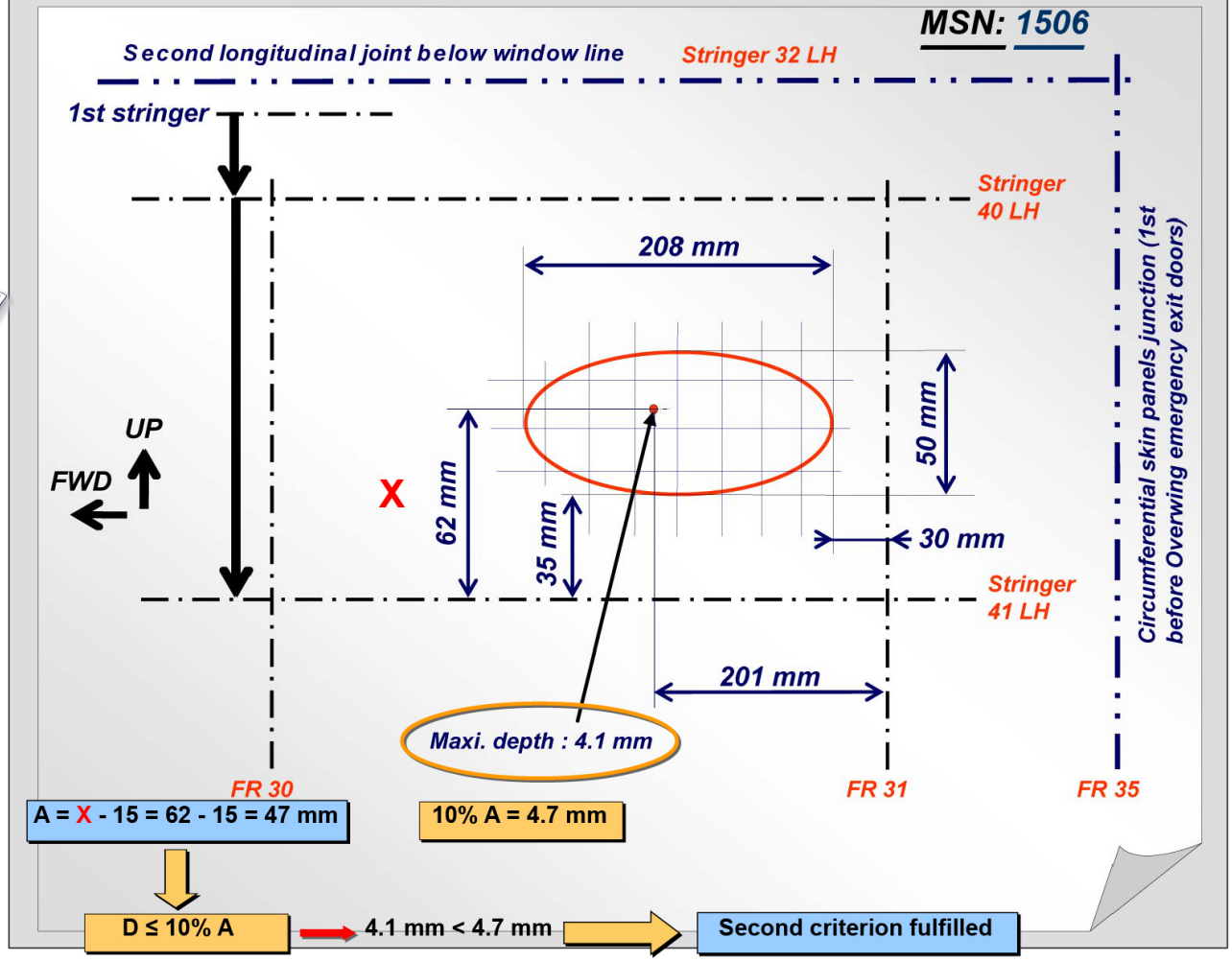
Allowable Damage Usage

Table of contents


53-13 - SUPPORT STRUTS
53-16 - FITTINGS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD FUSELAGE
53-21 - MAIN STRUCTURE
53-21-00 - MAIN STRUCTURE
53-21-11 - SKIN PLATES
53-21-11 PB 001 Identification - SKIN PLATES (Rev
53-21-11 PB 101 Allowable Damage - SKIN PLATE
53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
53-21-12 - FRAMES
53-21-13 - STRINGERS AND SKIN STIFFENERS
53-21-14 - FLOOR STRUCTURE
53-21-15 - SEAT TRACKS
53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
53-21-29 - MISCELLANEOUS STRUCTURE
53-22 - FLOOR PANELS
53-23 - SUPPORT STRUTS
53-24 - FIXED PARTITIONS

Structural Repair Manual:

Second criterion to be met : D ≤ 10% A. From outside A = X - 15 mm.
Value A is equal to 47 mm. D = 4.1 mm ≤ 10% A. (10% A = 4.7 mm)



ALLOWABLE DAMAGE INFORMATION - CONT'D

UGB13131 - U7ST0M0 - UM51DB000000001

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

Since both criteria are met, the dent meets the "nearness/form criterion". The paragraph reference is the paragraph 4.B.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

Both criteria are met, so the dent meets the "nearess / form criterion". Let's see the "Allowable Damage description / criteria" table : Refer to paragraph 4.B.

3. Allowable Damage Description / Criteria

Table 101

53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)

3. Allowable Damage Description/Criteria

DESCRIPTION	CRITERIA/TYPE	PARAGRAPH	REPAIR CATEGORY	INSPECTION INSTRUCTION REFERENCE
Skin Plates < 1>	Rework < 1>	4.A. < 1>	Refer to figure 103 < 2>	53-21-11-1-002-00 < 2>
Skin Plates	Dents *	4.B.	Refer to Diagram 103	53-21-11-1-001-00
	Dents **	4.C.	Refer to Diagram 104	-
Skin Plates - Temporary Allowable Damage Limits caused by Lightning Strikes	Burn M			-
Skin Plates on Section 13/14	Rework	4.E.	Refer to Diagram	53-21-11-1-003-00

Refer to paragraph 4.B

Skin Plates	Dents *	4.B.	Refer to Diagram 103	53-21-11-1-001-00
	Dents **	4.C.	Refer to Diagram 104	-

AIRCRAFT OTHER THAN A320-200 WV015, NO FURTHER APPLICATION FOR FUSELAGE SKIN PLATES ON SECTION 13/14 SINCE REVISION DATED AUG 01/07, REFER TO PARAGRAPH 4.E. .
< 2> Valid only for FWD Cargo Door Surrounding Panels.
- * Fulfilling "nearness/form" Criterion.
- ** Out of "nearness/form" Criterion.

NOTE: Dents are considered as "fulfilling nearness/form criterion" or "out of nearness/form criterion" in accordance with their geometry and their proximity to the nearest adjacent internal structure elements.
the parameters defined in Figure 104 .
n" are those whose edge is 15 mm (0.591 in.) or more away from the nearest fastener line or any

Both criteria fulfilled

- * Fulfilling "nearness/form" Criterion.

- ** Out of "nearness/form" Criterion.

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

Paragraph 4.B: the damage must be inspected following SRI task 53-21-11-1-001-00 requirements if damage is in repair category B.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

This allowable damage must be inspected following SRI task 53-21-11-1-001-00 requirements, if damage is in category B.

4.B - Allowable dents on fuselage skin plates - Dents fulfilling nearess / form criterion

53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)

B. Allowable Dents on Fuselage Skin Plates - Dents Fulfilling "nearness/form" Criterion

CAUTION: THIS ALLOWABLE DAMAGE MUST BE INSPECTED AT DEFINED INTERVALS. THE INSPECTION INSTRUCTION REFERENCE IS 53-21-11-1-001-00 AND IS DESCRIBED IN THE STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

CAUTION: THIS ALLOWABLE DAMAGE MUST BE INSPECTED AT DEFINED INTERVALS. THE INSPECTION INSTRUCTION REFERENCE IS 53-21-11-1-001-00 AND IS DESCRIBED IN THE STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

NOTE: This allowable damage data is no[t] applicable after Modification 35812K10500 for area defined between FR24 and FR34 [a]nd between STGR5 and STGR11 LH/RH.

NOTE: Dents are considered as "fulfilling [n]earness/form criterion" or "out of nearness/form criterion" in accordance with their geometry and their proximity to the nearest adjacent

This allowable damage must be inspected following SRI task 53-21-11-1-001-00 requirements, if damage is in category B.

NOTE: This allowable damage is valid as shown in Table 103 .

AIRCRAFT	WEIGHT VARIANT
A320-100	000, 001, 002
A320-200	000, 001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 018

Table 103 - Effectivity per Weight Variant and/or Aircraft Type

NOTE: Refer to paragraph 23 'Weight Variant Information' in the INTRODUCTION of the SRM. Tables in the subparagraphs give necessary data about all weight variants and their required information for allowable damage and repair applicability.

(1) This allowable damage data is applicable for the forward fuselage skin plates and is effective as follows:
- From FR24 thru FR35.

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

The allowable damage applicability has to be checked, using the weight variant table.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

The allowable damage applicability has to be checked, using the weight variant table (table 103) given at the beginning of the paragraph.

4.B - Allowable dents on fuselage skin plates - Dents fulfilling nearess / form criterion

53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)

B. Allowable Dents on Fuselage Skin Plates - Dents Fulfilling "nearness/form" Criterion

CAUTION: THIS ALLOWABLE DAMAGE MUST BE INSPECTED AT DEFINED INTERVALS. THE INSPECTION INSTRUCTION REFERENCE IS 53-21-11-1-001-00 AND IS DESCRIBED IN THE STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

CAUTION: OBEY THE ALLOWABLE DAMAGE EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 103 .

CAUTION: THE ALLOWABLE DAMAGE LI... GIVEN IN THIS PARAGRAPH ARE ONLY APPLICABLE TO THE TYPE OF D... OF DAMAGE TOGETHER WITH A DI... EXAMPLE DENT PLUS SCRATCH, C... DAMAGES ARE WITHIN THE 51-73-1... TAKEN IN TO ACCOUNT IN THE ASS...

NOTE: This allowable damage data is not applicable after Modification 35812K10500 for area defined between FR24 and FR34, and between STGR5 and STGR11 LH/RH.

NOTE: Dents are considered as "fulfilling nearness... criterion" in accordance with their geometry... internal structure elements. This must be determined according to the p... - Dents "fulfilling nearness/form criterion" ar... from the nearest fastener line or any cut-out... maximum depth is less or equal to 10% of th... dent and the edge of the nearest internal str...

NOTE: This allowable damage data is applicabl...

NOTE: This allowable damage is valid as s... in Table 103 .

AIRCRAFT	WEIGHT VARIANT
A320-100	000, 001, 002
A320-200	000, 001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 018

Table 103 - Effectivity per Weight Variant and/or Aircraft Type

NOTE: Refer to paragr... Tables in the su... required inform...

(1) This allowable dama... follows:
- From FR24 thru...

CAUTION: OBEY THE ALLOWABLE DAMAGE EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 103 .

AIRCRAFT	WEIGHT VARIANT
A320-100	000, 001, 002
A320-200	000, 001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 018

Table 103 - Effectivity per Weight Variant and/or Aircraft Type

Allowable damage are defined per weight variant (WV) effectivity. If WV effectivity of MSN different from those ones :
1/ Check if weight variant of MSN is covered by a different WV (see WV coverage list in the introduction of the SRM),
2/ If WV of MSN not in WV coverage list, contact your engineering department.

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

Since the engineering department informs that the weight variant of MSN 1506 did not change since aircraft delivery, the MSN 1506 weight variant is still 010.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

If the WV of MSN 1506 did not change since A/C delivery, it is available in the introduction of the SRM. The engineering department informs that WV to be used for allowable damage reading of MSN 1506 is still 010.

4.B - Allowable dents on fuselage skin plates - Dents fulfilling nearess / form criterion

53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)

B. Allowable Dents on Fuselage Skin Plates - Dents Fulfilling "nearness/form" Criterion

CAUTION: THIS ALLOWABLE DAMAGE MUST BE INSPECTED AT DEFINED INTERVALS. THE INSPECTION INSTRUCTION REFERENCE IS 53-21-11-1-001-00 AND IS DESCRIBED IN THE STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

CAUTION: OBEY THE ALLOWABLE DAMAGE EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 103 .

CAUTION: THE ALLOWABLE DAMAGE LI... GIVEN IN THIS PARAGRAPH ARE ONLY APPLICABLE TO THE TYPE OF D... OF DAMAGE TOGETHER WITH A DI... EXAMPLE DENT PLUS SCRATCH, C... DAMAGES ARE WITHIN THE 51-73-1... TAKEN INTO ACCOUNT IN THE ASS...

NOTE: This allowable damage data is not applicable after Modification 35812K10500 for area defined between FR24 and FR34, and between STGR5 and STGR11 LH/RH.

NOTE: Dents are considered as "fulfilling nearness... criterion" in accordance with their geometry ... internal structure elements. This must be determined according to the p... - Dents "fulfilling nearness/form criterion" ar... from the nearest fastener line or any cut-out ... maximum depth is less or equal to 10% of t... dent and the edge of the nearest internal str...

NOTE: This allowable damage data is applicabl...

NOTE: This allowable damage is valid as s... in Table 103 .

AIRCRAFT	WEIGHT VARIANT
A320-100	000, 001, 002
A320-200	000, 001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 018

Table 103 - Effectivity per Weight Variant and/or Aircraft Type

NOTE: Refer to paragraph 23 'Weight Variant Information' in the INTRODUCTION of the SRM. Tables in the s... required inform...

(1) This allowable dam... follows:
- From FR24 th...

CAUTION: OBEY THE ALLOWABLE DAMAGE EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 103 .

AIRCRAFT	WEIGHT VARIANT
A320-100	000, 001, 002
A320-200	000, 001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 018

Table 103 - Effectivity per Weight Variant and/or Aircraft Type

The introduction chapter provides the WV of the MSN at aircraft delivery. The WV can change depending on SB embodiement. Engineering department infroms that WV of MSN 1506 did not change since A/C delivery, WV of MSN 1506 is still 010..

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

Since the weight variant is in the table 103, we can continue the damage assessment.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

MSN 1506 is a A320-200, Weight Variant 010 is included in the table, thus, the following allowable damage information can be used.

4.B - Allowable dents on fuselage skin plates - Dents fulfilling nearess / form criterion

53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)

B. Allowable Dents on Fuselage Skin Plates - Dents Fulfilling "nearness/form" Criterion

CAUTION: THIS ALLOWABLE DAMAGE MUST BE INSPECTED AT DEFINED INTERVALS. THE INSPECTION INSTRUCTION REFERENCE IS 53-21-11-1-001-00 AND IS DESCRIBED IN THE STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

CAUTION: OBEY THE ALLOWABLE DAMAGE EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 103 .

CAUTION: THE ALLOWABLE DAMAGE LI... GIVEN IN THIS PARAGRAPH ARE ONLY APPLICABLE TO THE TYPE OF D... OF DAMAGE TOGETHER WITH A DIF... EXAMPLE DENT PLUS SCRATCH, C... DAMAGES ARE WITHIN THE 51-73-1... TAKEN INTO ACCOUNT IN THE ASS...

NOTE: This allowable damage data is not applicable after Modification 35812K10500 for area defined between FR24 and FR34, and between STGR5 and STGR11 LH/RH.

NOTE: Dents are considered as "fulfilling nearness... their geometry...

NOTE: This allowable damage data is applicabl...

NOTE: This allowable damage is valid as s... in Table 103 .

AIRCRAFT	WEIGHT VARIANT
A320-100	000, 001, 002
A320-200	000, 001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 018

Table 103 - Effectivity per Weight Variant and/or Aircraft Type

NOTE: Refer to paragraph 23 'Weight Variant Information' in the INTRODUCTION of the SRM. Tables in the s... required inform...

(1) This allowable dam... follows:
- From FR24 th...

CAUTION: OBEY THE ALLOWABLE DAMAGE EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 103 .

AIRCRAFT	WEIGHT VARIANT
A320-100	000, 001, 002
A320-200	000, 001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 018

Table 103 - Effectivity per Weight Variant and/or Aircraft Type

For A320-200, WV 010 is in the table, we can continue the damage assessment.

The introduction chapter provides the WV of the MSN at aircraft delivery. The WV can change depending on SB embodiement. Engineering department infroms that WV of MSN 1506 did not change since A/C delivery, WV of MSN 1506 is still 010..

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

If damage location is between FR 24 and 34, and between STGR 5 and STGR 11 LH/RH, we have to check if mod 35812K10500 is embodied on MSN 1506. But, our damage location is found between STGR 40 LH and 41LH, so we can continue the damage assessment.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

Read carefully any note. The allowable damage is not applicable if damage location is found between FR 24 and 34, and between STGR 5 and STGR 11 LH/RH on A/C post MOD 35812K10500.

4.B - Allowable dents on fuselage skin plates - Dents fulfilling nearess / form criterion

53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)

B. Allowable Dents on Fuselage Skin Plates - Dents Fulfilling "nearness/form" Criterion

CAUTION: THIS ALLOWABLE DAMAGE MUST BE INSPECTED AT DEFINED INTERVALS. THE INSPECTION INSTRUCTION REFERENCE IS 53-21-11-1-001-00 AND IS DESCRIBED IN THE STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

CAUTION: OBEY THE ALLOWABLE DAMAGE EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 103 .

CAUTION: THE ALLOWABLE DAMAGE LIMITS GIVEN IN THIS PARAGRAPH ARE ONLY APPLICABLE TO THE TYPE OF DAMAGE SPECIFIED. IF YOU HAVE THIS TYPE OF DAMAGE TOGETHER WITH A DIFFERENT TYPE OF DAMAGE, FOR EXAMPLE DENT PLUS SCRATCH, CONTACT AIRBUS. IF ANY OF THE DAMAGES ARE WITHIN THE 51-73-11 LIMITS, THEY DO NOT NEED TO BE TAKEN IN TO ACCOUNT IN THE ASSESSMENT.

NOTE: This allowable damage data is not applicable after Modification 35812K10500 for area defined between FR24 and FR34, and between STGR5 and STGR11 LH/RH.

NOTE: Dents are considered as "fulfilling nearness/form criterion" or "out of nearness/form criterion" in accordance with their geometry and the proximity to the nearest adjacent internal structure elements.
This must be determined according to the parameters
- Dents "fulfilling nearness/form criterion" are those wh
from the nearest fastener line or any cut-out in the skin
maximum depth is less or equal to 10% of the distance
dent and the edge of the nearest internal structure (D≤10% A).

NOTE: This allowable damage data is applicable before Modification 38525K11750.

NOTE: This allowable damage is valid as shown in Table 103 .

AIRCRAFT	WEIGHT VARIANT
A320-100	000, 001, 002
A320-200	

Table 103 - Effectivity

NOTE: Refer to parag
Tables in the S
required inform

(1) This allowable dam
follows:
- From FR24 thru FR35.

NOTE: This allowable damage data is not applicable after Modification 35812K10500 for area defined between FR24 and FR34, and between STGR5 and STGR11 LH/RH.

Restriction: if damage location was between frames 24 and 34, and between STGR 5 and STGR 11 LH/RH, we would have to check if MOD 35812K10500 has been embodied on MSN 1506. If yes, damage report to be sent to Airbus. As damage location is between STGR 40LH and 41LH, we can continue the damage assessment.

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

Since our damage location is between FR 30 and 31, we can continue the damage assessment.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

The allowable damage applicability has to be checked, the damage must be found between frames 24 and 35.

4.B - Allowable dents on fuselage skin plates - Dents fulfilling nearess / form criterion

53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)

B. Allowable Dents on Fuselage Skin Plates - Dents Fulfilling "nearness/form" Criterion

CAUTION: THIS ALLOWABLE DAMAGE MUST BE INSPECTED AT DEFINED INTERVALS. THE INSPECTION INSTRUCTION REFERENCE IS 53-21-11-1-001-00 AND IS DESCRIBED IN THE STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION OF THE SRM. INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.

CAUTION: OBEY THE ALLOWABLE DAMAGE EFFECTIVITY PER WEIGHT VARIANT AND AIRCRAFT TYPE GIVEN IN TABLE 103 .

CAUTION: THE ALLOWABLE DAMAGE LIMITS GIVEN IN THIS PARAGRAPH ARE ONLY APPLICABLE TO THE TYPE OF DAMAGE SPECIFIED. IF YOU HAVE THIS TYPE OF DAMAGE TOGETHER WITH A DIFFERENT TYPE OF DAMAGE, FOR EXAMPLE DENT PLUS SCRATCH, CONTACT AIRBUS. IF ANY OF THE DAMAGES ARE WITHIN THE 51-73-11 LIMITS, THEY DO NOT NEED TO BE TAKEN INTO ACCOUNT IN THE ASSESSMENT.

NOTE: This allowable damage data is not applicable after Modification 35812K10500 for area defined between FR24 and FR34, and between STGR5 and STGR11 LH/RH.

NOTE: Dents are considered as "fulfilling nearness/form criterion" or "out of nearness/form criterion" in accordance with their geometry and their proximity to the ne
internal structure elements.
This must be determined according to the parameters defined in Figure
- Dents "fulfilling nearness/form criterion" are those whose edge is 15 n
from the nearest fastener line or any cut-out in the skin (B≥15 mm (0.59
maximum depth is less or equal to 10% of the distance between the de
dent and the edge of the nearest internal structure (D≤10% A).

NOTE: This allowable damage data is applicable before Modification 38525K11750.

NOTE: This allowable damage is valid as shown in Table 103 .

AIRCRAFT	WEIGHT VARIANT
A320-100	000, 001, 002
A320-200	000, 001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015

Table 103 - Effectivity per Weight Variant and/or Aircraft Type

NOTE: Refer to paragraph 23 'Weight Variant Information' in
Tables in the subparagraphs give necessary data a
required information for allowable damage and re
applicability.

(1) This allowable damage data is applicable for the forward fuselage skin plates and is effective as follows:
- From FR24 thru FR35.

Damage located between frames 30 and 31, we can continue the damage assessment.

(1) This allowable damage data is applicable for the forward fuselage skin plates and is effective as follows:
- From FR24 thru FR35.

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

After measurement of dent in skin panel, compare the dent in accordance with diagram 103.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

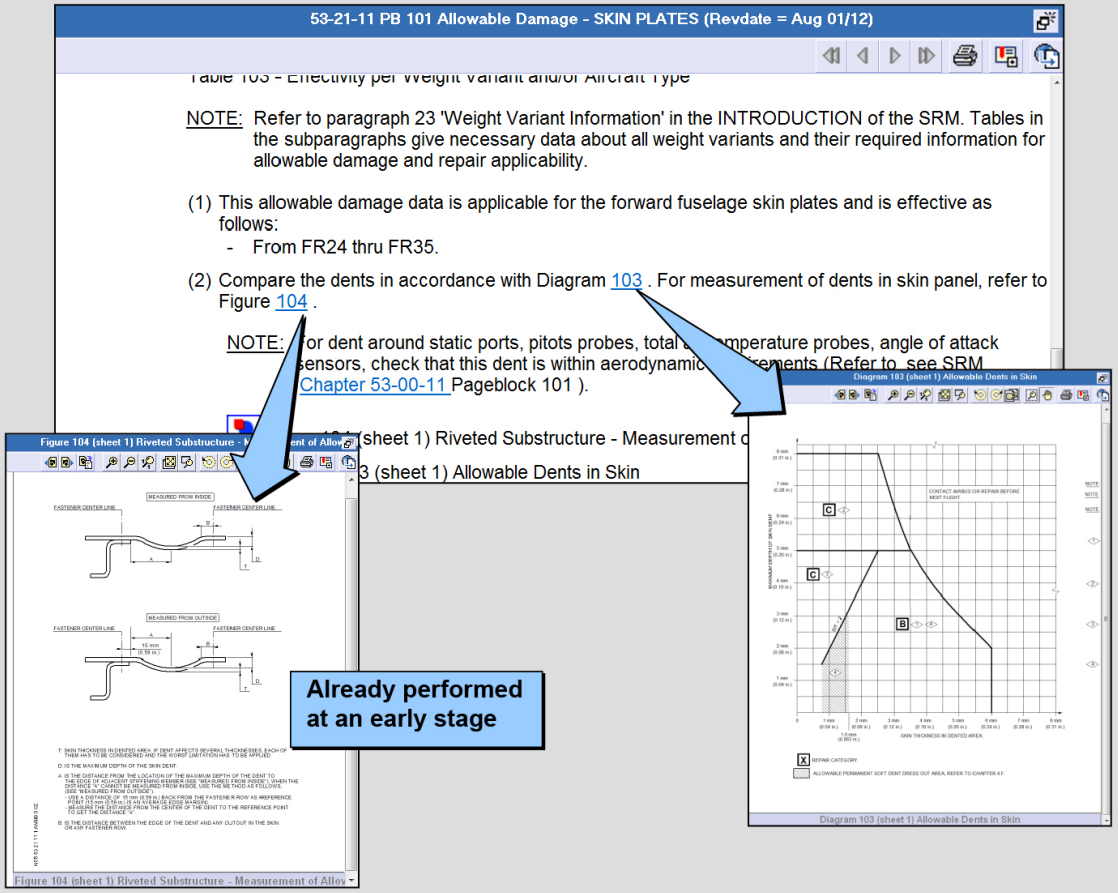
Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

Diagram 103 enables to determine if the damage is within allowable limits or not and meet the related conditions. The dent measurement according to figure 103 has been done at an early stage.

4.B - Allowable dents on fuselage skin plates - Dents fulfilling nearess / form criterion


53-21-11 PB 101 Allowable Damage - SKIN PLATES (Revdate = Aug 01/12)
NOTE: Refer to paragraph 23 'Weight Variant Information' in the INTRODUCTION of the SRM. Tables in the subparagraphs give necessary data about all weight variants and their required information for allowable damage and repair applicability.
(1) This allowable damage data is applicable for the forward fuselage skin plates and is effective as follows:
- From FR24 thru FR35.
(2) Compare the dents in accordance with Diagram 103 . For measurement of dents in skin panel, refer to Figure 104 .
Chapter 53-00-11 Pageblock 101).
Figure 104 (sheet 1) Riveted Substructure - Measurement
3 (sheet 1) Allowable Dents in Skin
Already performed at an early stage
Diagram 103 (sheet 1) Allowable Dents in Skin

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

ALLOWABLE DAMAGE USAGE

This diagram (figure 103) enables to determine if the damage is allowable and the condition of allowability. A note refers to applicability areas.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

53-12 - FLOORS PANELS
53-13 - SUPPORT STRUTS
53-16 - FITTINGS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD FUSELAGE
53-21 - MAIN STRUCTURE
53-21-00 - MAIN STRUCTURE
53-21-11 - SKIN PLATES
53-21-11 PB 001 Identification - SKIN PLATES (Rev
53-21-11 PB 101 Allowable Damage - SKIN PLATE
53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
53-21-12 - FRAMES
53-21-13 - STRINGERS AND SKIN STIFFENERS
53-21-14 - FLOOR STRUCTURE
53-21-15 - SEAT TRACKS
53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
53-21-29 - MISCELLANEOUS STRUCTURE
53-22 - FLOOR PANELS
53-23 - SUPPORT STRUTS
53-24 - FIXED PARTITIONS
53-25 - FAIRINGS

Structural Repair Manual:

Entry points for this diagram are the maximum depth of the dent and the skin thickness in dented area. There is reminder for nearess form requirement for the diagram. Moreover, a note refers to applicability areas.

Maximum depth of the dent

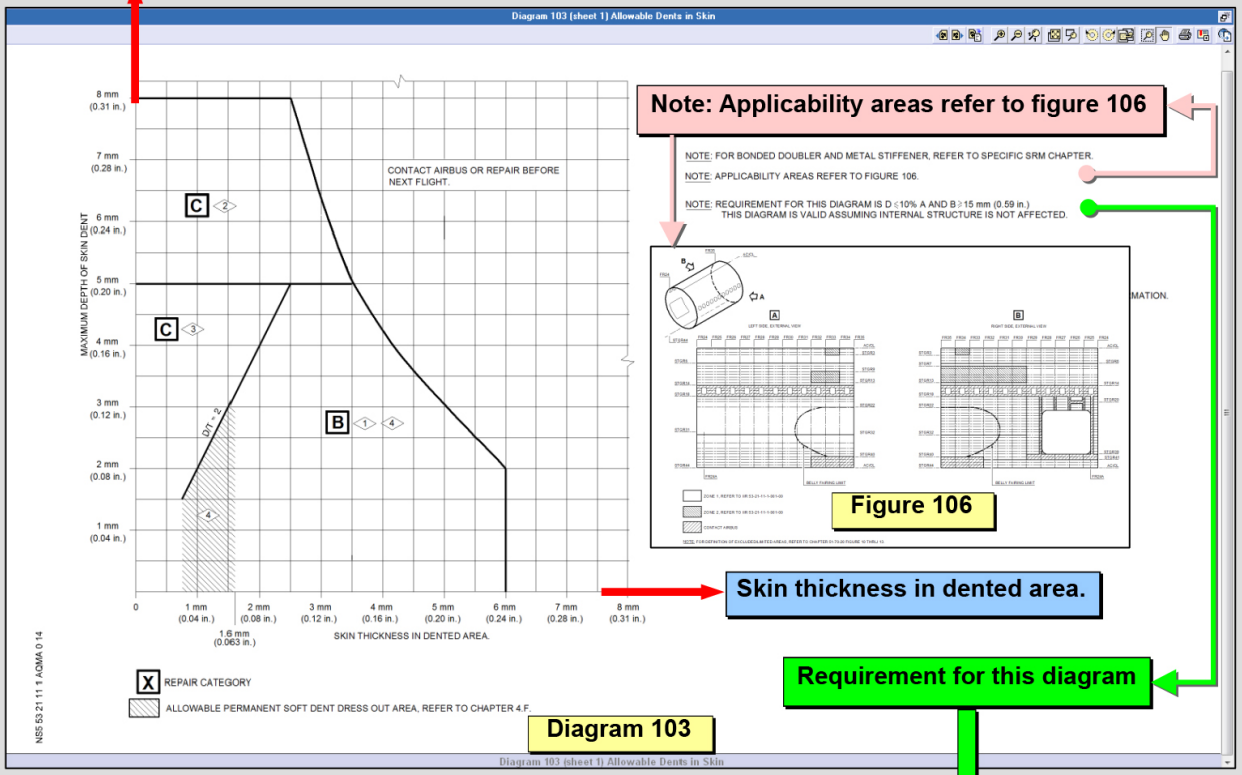


Diagram 103 (sheet 1) Allowable Dents in Skin
MAXIMUM DEPTH OF SKIN DENT
8 mm (0.31 in.)
7 mm (0.28 in.)
6 mm (0.24 in.)
5 mm (0.20 in.)
4 mm (0.16 in.)
3 mm (0.12 in.)
2 mm (0.08 in.)
1 mm (0.04 in.)
CONTACT AIRBUS OR REPAIR BEFORE NEXT FLIGHT.
C
B
DIT = 2
0
1 mm (0.04 in.)
2 mm (0.08 in.)
3 mm (0.12 in.)
4 mm (0.16 in.)
5 mm (0.20 in.)
6 mm (0.24 in.)
7 mm (0.28 in.)
8 mm (0.31 in.)
1.6 mm (0.063 in.)
SKIN THICKNESS IN DENTED AREA.
X REPAIR CATEGORY
ALLOWABLE PERMANENT SOFT DENT DRESS OUT AREA, REFER TO CHAPTER 4.F.
NSS 53 21 11 1 AOMA 0 14
Diagram 103 (sheet 1) Allowable Dents in Skin
Note: Applicability areas refer to figure 106
NOTE: FOR BONDED DOUBLER AND METAL STIFFENER, REFER TO SPECIFIC SRM CHAPTER.
NOTE: APPLICABILITY AREAS REFER TO FIGURE 106.
NOTE: REQUIREMENT FOR THIS DIAGRAM IS D ⩽10% A AND B⩾15 mm (0.59 in.)
THIS DIAGRAM IS VALID ASSUMING INTERNAL STRUCTURE IS NOT AFFECTED.
Figure 106
Skin thickness in dented area.
Requirement for this diagram
Diagram 103
NOTE: REQUIREMENT FOR THIS DIAGRAM IS D ⩽10% A AND B⩾15 mm (0.59 in.)
THIS DIAGRAM IS VALID ASSUMING INTERNAL STRUCTURE IS NOT AFFECTED.

ALLOWABLE DAMAGE INFORMATION - ALLOWABLE DAMAGE USAGE

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

Check if the dent location is or not in the excluded areas.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
  - 53-21-11 - SKIN PLATES
    - 53-21-11 PB 001 Identification - SKIN PLATES (Rev
    - 53-21-11 PB 101 Allowable Damage - SKIN PLATE
    - 53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
    - 53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
    - 53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
  - 53-21-12 - FRAMES
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

Entry points for this diagram are the maximum depth of the dent and the skin thickness in dented area. There is reminder for nearess form requirement for the diagram. Moreover, a note refers to applicability areas.

Maximum depth of the dent

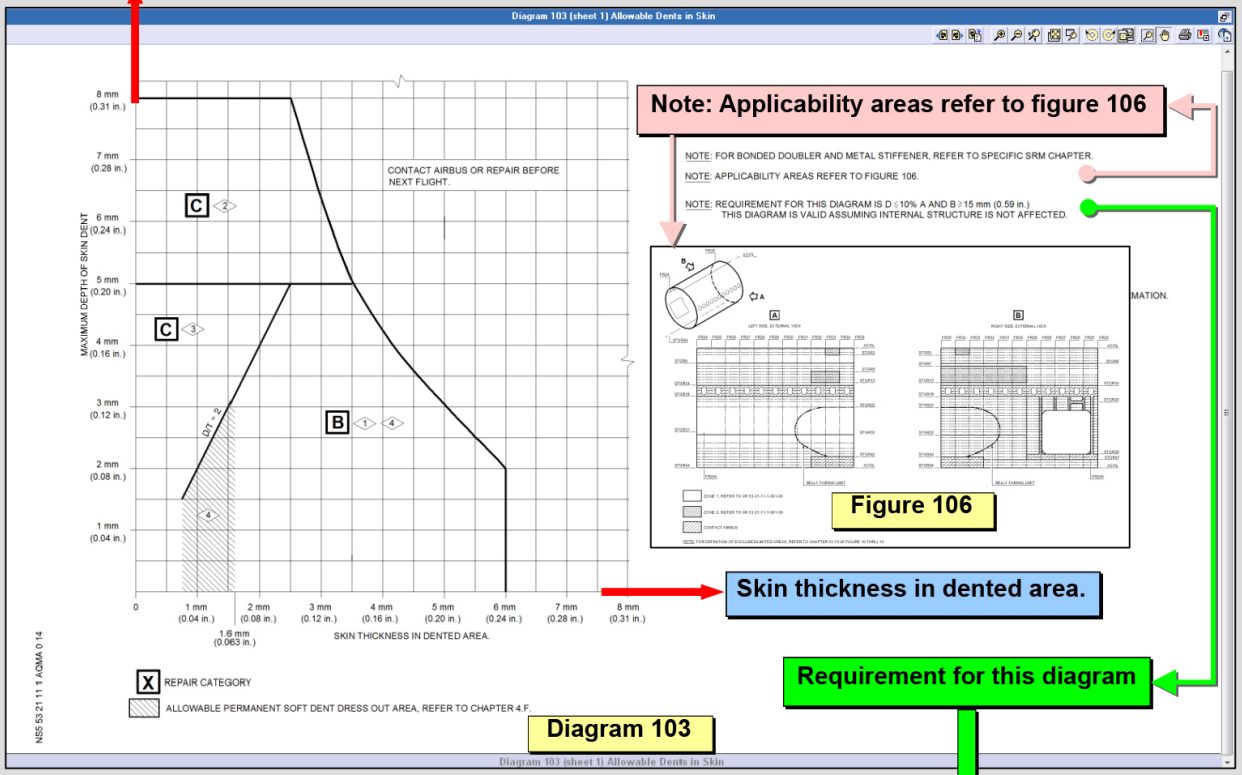


Diagram 103 (sheet 1) Allowable Dents in Skin
MAXIMUM DEPTH OF SKIN DENT
8 mm (0.31 in.)
7 mm (0.28 in.)
6 mm (0.24 in.)
5 mm (0.20 in.)
4 mm (0.16 in.)
3 mm (0.12 in.)
2 mm (0.08 in.)
1 mm (0.04 in.)
CONTACT AIRBUS OR REPAIR BEFORE NEXT FLIGHT.
C
B
DIT = 2
0
1 mm (0.04 in.)
2 mm (0.08 in.)
3 mm (0.12 in.)
4 mm (0.16 in.)
5 mm (0.20 in.)
6 mm (0.24 in.)
7 mm (0.28 in.)
8 mm (0.31 in.)
1.6 mm (0.063 in.)
SKIN THICKNESS IN DENTED AREA.
X REPAIR CATEGORY
ALLOWABLE PERMANENT SOFT DENT DRESS OUT AREA, REFER TO CHAPTER 4.F.
NSS 53 21 11 1 AOMA 0 14
Diagram 103 (sheet 1) Allowable Dents in Skin

Note: Applicability areas refer to figure 106

NOTE: FOR BONDED DOUBLER AND METAL STIFFENER, REFER TO SPECIFIC SRM CHAPTER.

NOTE: APPLICABILITY AREAS REFER TO FIGURE 106.

NOTE: REQUIREMENT FOR THIS DIAGRAM IS D ⩽10% A AND B⩾15 mm (0.59 in.) THIS DIAGRAM IS VALID ASSUMING INTERNAL STRUCTURE IS NOT AFFECTED.

Figure 106

Skin thickness in dented area.

Requirement for this diagram

Diagram 103

NOTE: REQUIREMENT FOR THIS DIAGRAM IS D ⩽10% A AND B⩾15 mm (0.59 in.)
THIS DIAGRAM IS VALID ASSUMING INTERNAL STRUCTURE IS NOT AFFECTED.

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

On the diagram, there are some repair categories. If the damage location is in repair category B, a re-inspection following Inspection Instruction Reference is necessary, and a NDT inspection is required to confirm there is no crack.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

- 53-13 - SUPPORT STRUTS
- 53-16 - FITTINGS
- 53-19 - MISCELLANEOUS (DRAINS, ...)
- 53-20 - FORWARD FUSELAGE
- 53-21 - MAIN STRUCTURE
  - 53-21-00 - MAIN STRUCTURE
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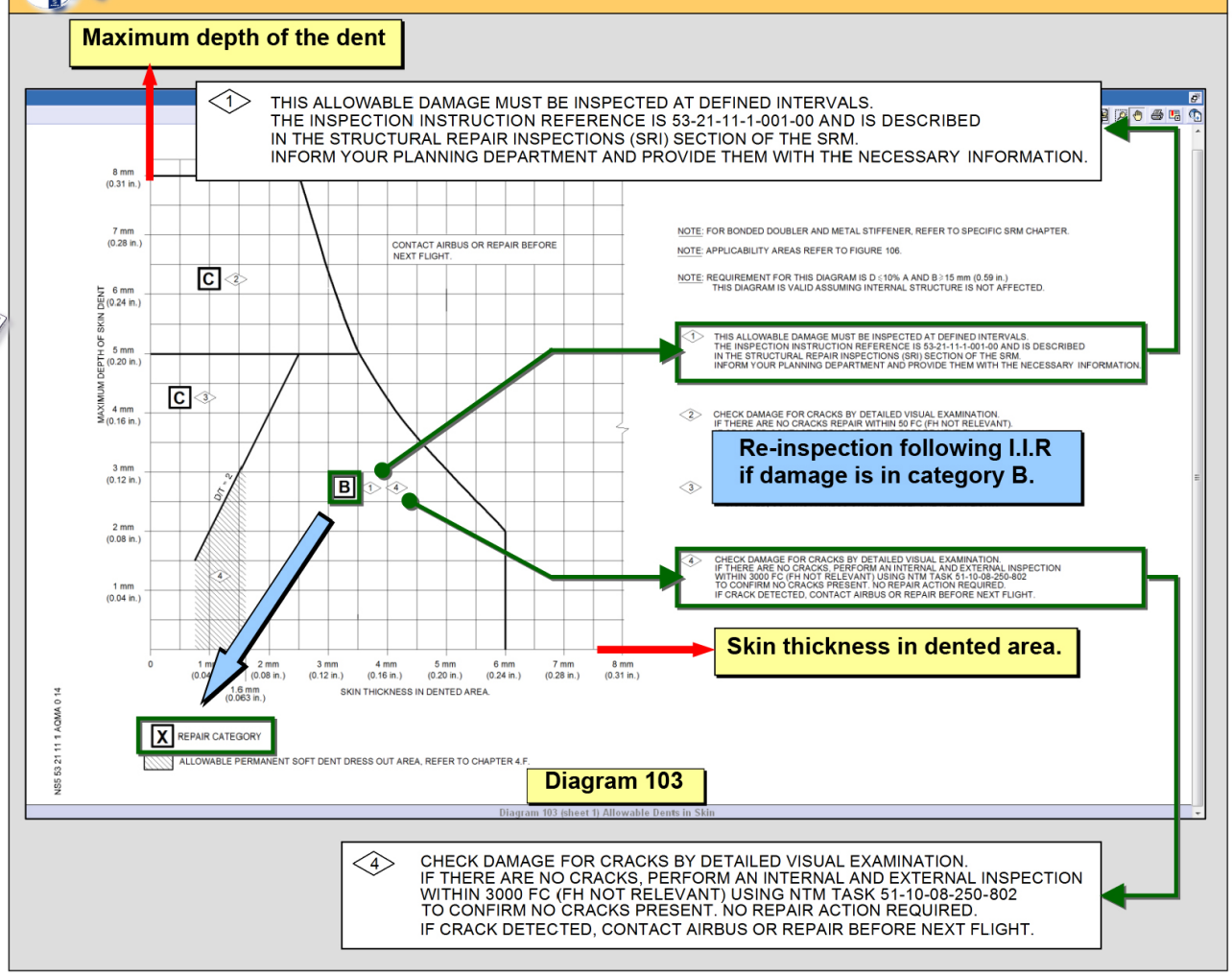
  - 53-21-13 - STRINGERS AND SKIN STIFFENERS
  - 53-21-14 - FLOOR STRUCTURE
  - 53-21-15 - SEAT TRACKS
  - 53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
  - 53-21-29 - MISCELLANEOUS STRUCTURE
- 53-22 - FLOOR PANELS
- 53-23 - SUPPORT STRUTS
- 53-24 - FIXED PARTITIONS

Structural Repair Manual:

Repair categories are indicated on the diagram. If damage location is in repair category B, re-inspection following Inspection Instruction Reference (I.I.R) requirements.


Maximum depth of the dent
1 THIS ALLOWABLE DAMAGE MUST BE INSPECTED AT DEFINED INTERVALS.
THE INSPECTION INSTRUCTION REFERENCE IS 53-21-11-1-001-00 AND IS DESCRIBED
IN THE STRUCTURAL REPAIR INSPECTIONS (SRI) SECTION OF THE SRM.
INFORM YOUR PLANNING DEPARTMENT AND PROVIDE THEM WITH THE NECESSARY INFORMATION.
CONTACT AIRBUS OR REPAIR BEFORE NEXT FLIGHT.
NOTE: FOR BONDED DOUBLER AND METAL STIFFENER, REFER TO SPECIFIC SRM CHAPTER.
NOTE: APPLICABILITY AREAS REFER TO FIGURE 106.
NOTE: REQUIREMENT FOR THIS DIAGRAM IS D ≤10% A AND B ≥15 mm (0.59 in.)
THIS DIAGRAM IS VALID ASSUMING INTERNAL STRUCTURE IS NOT AFFECTED.
MAXIMUM DEPTH OF SKIN DENT
SKIN THICKNESS IN DENTED AREA.
2 CHECK DAMAGE FOR CRACKS BY DETAILED VISUAL EXAMINATION.
IF THERE ARE NO CRACKS REPAIR WITHIN 50 FC (FH NOT RELEVANT).
3
Re-inspection following I.I.R if damage is in category B.
4 CHECK DAMAGE FOR CRACKS BY DETAILED VISUAL EXAMINATION.
IF THERE ARE NO CRACKS, PERFORM AN INTERNAL AND EXTERNAL INSPECTION
WITHIN 3000 FC (FH NOT RELEVANT) USING NTM TASK 51-10-08-250-802
TO CONFIRM NO CRACKS PRESENT. NO REPAIR ACTION REQUIRED.
IF CRACK DETECTED, CONTACT AIRBUS OR REPAIR BEFORE NEXT FLIGHT.
Skin thickness in dented area.
X REPAIR CATEGORY
ALLOWABLE PERMANENT SOFT DENT DRESS OUT AREA, REFER TO CHAPTER 4.F.
Diagram 103
Diagram 103 (sheet 1) Allowable Dents in Skin
4 CHECK DAMAGE FOR CRACKS BY DETAILED VISUAL EXAMINATION.
IF THERE ARE NO CRACKS, PERFORM AN INTERNAL AND EXTERNAL INSPECTION
WITHIN 3000 FC (FH NOT RELEVANT) USING NTM TASK 51-10-08-250-802
TO CONFIRM NO CRACKS PRESENT. NO REPAIR ACTION REQUIRED.
IF CRACK DETECTED, CONTACT AIRBUS OR REPAIR BEFORE NEXT FLIGHT.

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

On the diagram, draw a line of the same skin thickness and another line of the same maximum depth of the dent.
According to the diagram 103, the damage is in repair category C.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

Detailed Location

Structure Identification

Allowable Damage Information

Allowable Damage Usage

Table of contents

53-12 - FLOORS PANELS
53-13 - SUPPORT STRUTS
53-16 - FITTINGS
53-19 - MISCELLANEOUS (DRAINS, ...)
53-20 - FORWARD FUSELAGE
53-21 - MAIN STRUCTURE
53-21-00 - MAIN STRUCTURE
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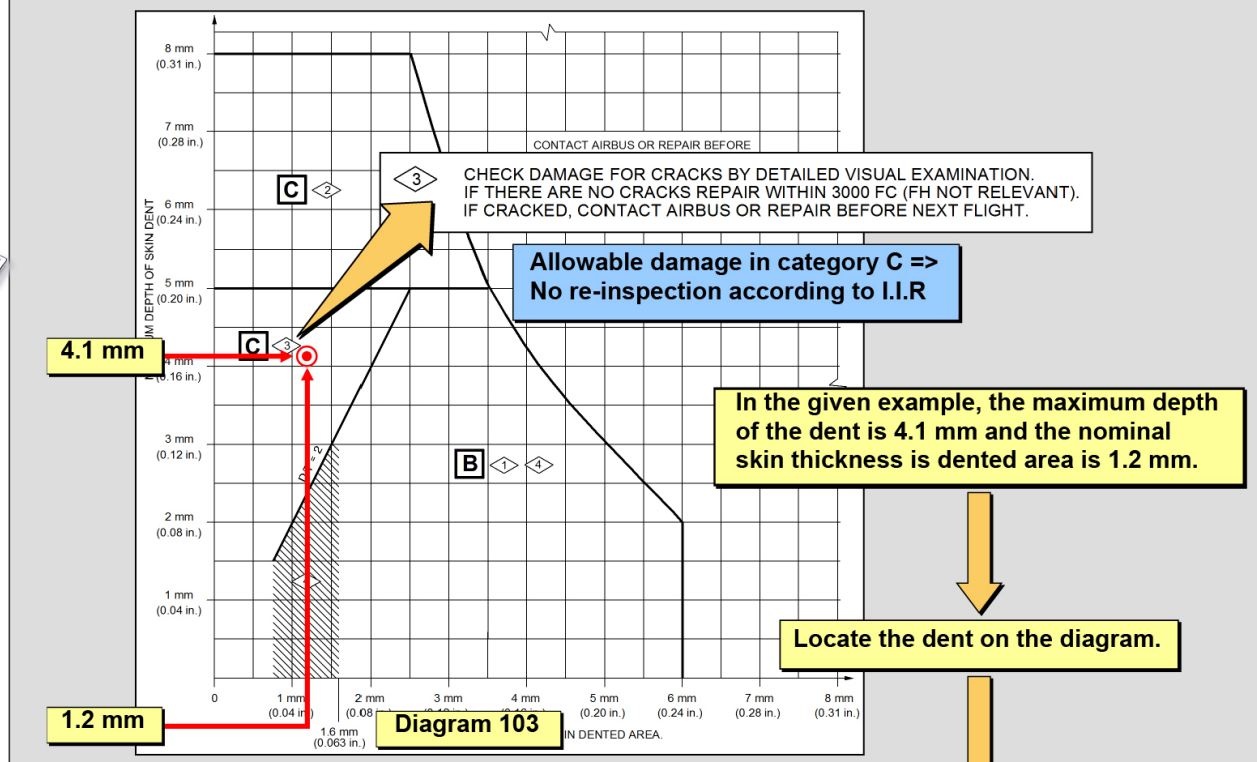
53-21-11 PB 101 - SRI SKIN PLATES (Revdate = A
53-21-11 PB 201 Repairs - SKIN PLATES (Revdate
53-21-11 PB 201 - SRI SKIN PLATES (Revdate = N
53-21-12 - FRAMES
53-21-13 - STRINGERS AND SKIN STIFFENERS
53-21-14 - FLOOR STRUCTURE
53-21-15 - SEAT TRACKS
53-21-17 - JUNCTION - FWD FUSELAGE/CENTER F
53-21-29 - MISCELLANEOUS STRUCTURE
53-22 - FLOOR PANELS
53-23 - SUPPORT STRUTS
53-24 - FIXED PARTITIONS
53-25 - FAIRINGS

Structural Repair Manual:

Both values, the skin thickness in the dented area and the depth of the dent, are plotted onto the diagram, which defines a point. The area where this point is shown defines the subsequent actions to do.


8 mm (0.31 in.)
7 mm (0.28 in.)
6 mm (0.24 in.)
5 mm (0.20 in.)
3 mm (0.12 in.)
2 mm (0.08 in.)
1 mm (0.04 in.)
0
1 mm (0.04 in.)
2 mm (0.08 in.)
3 mm
4 mm
5 mm (0.20 in.)
6 mm (0.24 in.)
7 mm (0.28 in.)
8 mm (0.31 in.)
1.6 mm (0.063 in.)
DEPTH OF SKIN DENT
IN DENTED AREA.
CONTACT AIRBUS OR REPAIR BEFORE
C
2
3
CHECK DAMAGE FOR CRACKS BY DETAILED VISUAL EXAMINATION.
IF THERE ARE NO CRACKS REPAIR WITHIN 3000 FC (FH NOT RELEVANT).
IF CRACKED, CONTACT AIRBUS OR REPAIR BEFORE NEXT FLIGHT.
Allowable damage in category C =>
No re-inspection according to I.I.R
4.1 mm
C
3
B
1
4
In the given example, the maximum depth of the dent is 4.1 mm and the nominal skin thickness is dented area is 1.2 mm.
Locate the dent on the diagram.
1.2 mm
Diagram 103
Read the instructions corresponding to the relevant location of the dent on the diagram.

ALLOWABLE DAMAGE INFORMATION - CONT'D

UGB13131 - U7ST0M0 - UM51DB000000001

DAMAGE ASSESSMENT EXAMPLE D/O (3)

ALLOWABLE DAMAGE INFORMATION (continued)

CONT'D

The damage has to be recorded. The SRM 51-11-15 gives the guidelines for data recording of allowable damage and repairs.

UGB13131 - U7ST0M0 - UM51DB000000001

Damage Identification

DamageGeographical Location / Measurement

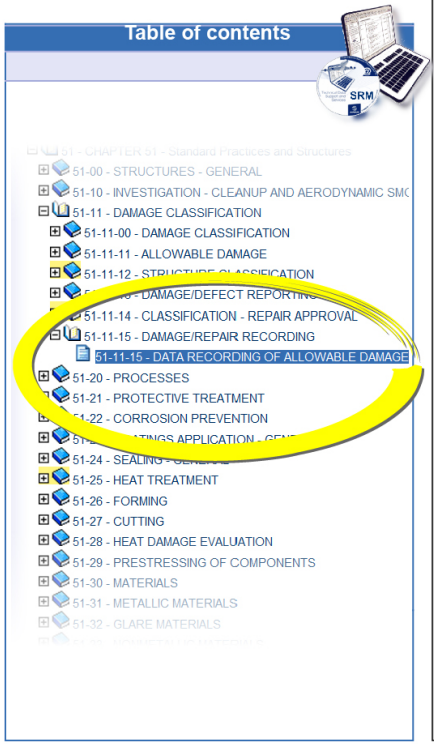
Detailed Location

Structure Identification

Allowable Damage Information

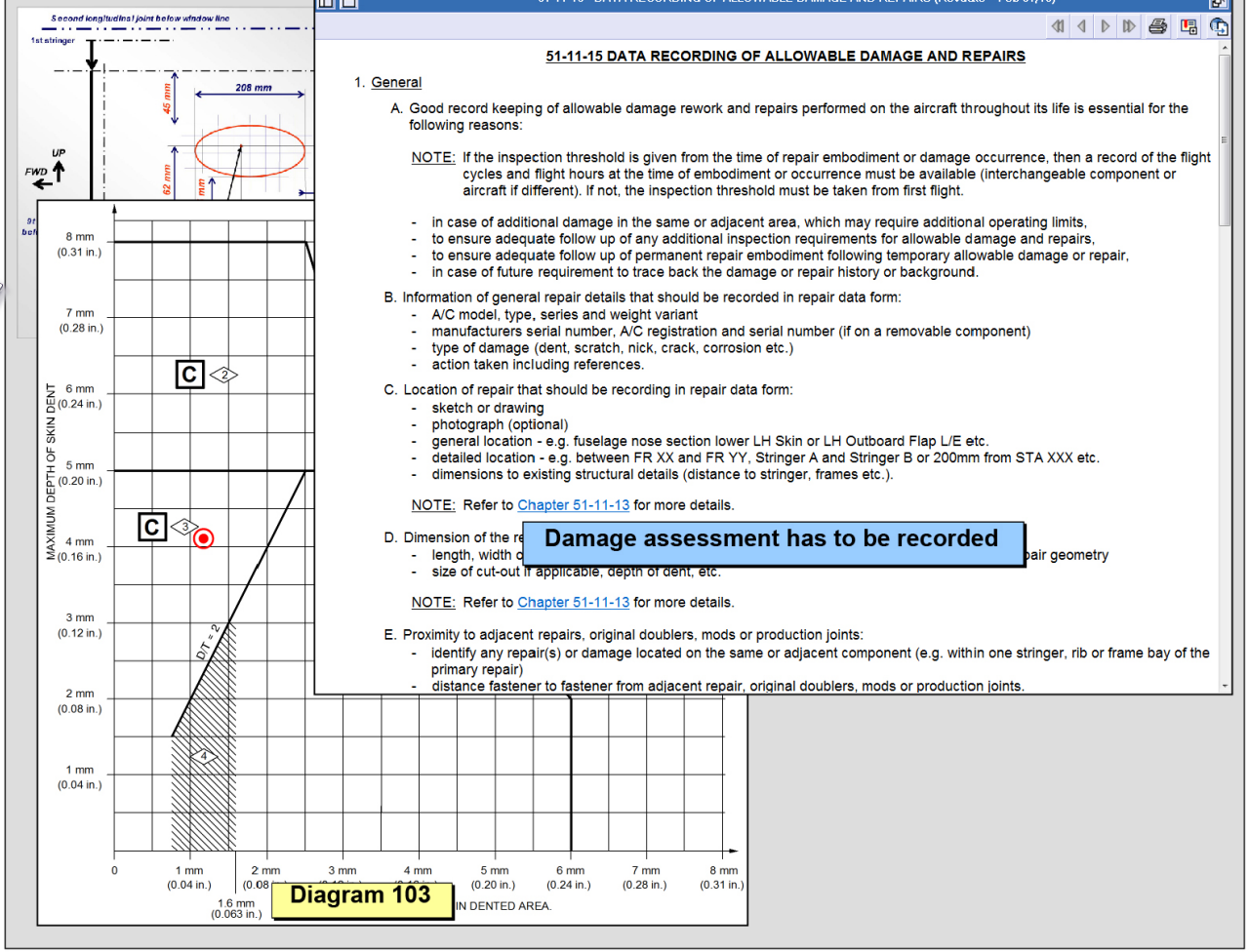
Allowable Damage Usage

Table of contents


51-00 - STRUCTURES - GENERAL
51-10 - INVESTIGATION - CLEANUP AND AERODYNAMIC SMO
51-11 - DAMAGE CLASSIFICATION
51-11-00 - DAMAGE CLASSIFICATION
51-11-11 - ALLOWABLE DAMAGE
51-11-12 - STRUCTURE CLASSIFICATION
51-11-14 - CLASSIFICATION - REPAIR APPROVAL
51-11-15 - DAMAGE/REPAIR RECORDING
51-11-15 - DATA RECORDING OF ALLOWABLE DAMAGE
51-20 - PROCESSES
51-21 - PROTECTIVE TREATMENT
51-24 - SEALING
51-25 - HEAT TREATMENT
51-26 - FORMING
51-27 - CUTTING
51-28 - HEAT DAMAGE EVALUATION
51-29 - PRESTRESSING OF COMPONENTS
51-30 - MATERIALS
51-31 - METALLIC MATERIALS
51-32 - GLARE MATERIALS

Structural Repair Manual:

Damade assessment has to be recorded, the SRM 51-11-15 gives guidelines for data recording of allowable damage and repairs.


51-11-15 - DATA RECORDING OF ALLOWABLE DAMAGE AND REPAIRS (Revdate = Feb 01/10)
51-11-15 DATA RECORDING OF ALLOWABLE DAMAGE AND REPAIRS
1. General
A. Good record keeping of allowable damage rework and repairs performed on the aircraft throughout its life is essential for the following reasons:
NOTE: If the inspection threshold is given from the time of repair embodiment or damage occurrence, then a record of the flight cycles and flight hours at the time of embodiment or occurrence must be available (interchangeable component or aircraft if different). If not, the inspection threshold must be taken from first flight.
- in case of additional damage in the same or adjacent area, which may require additional operating limits,
- to ensure adequate follow up of any additional inspection requirements for allowable damage and repairs,
- to ensure adequate follow up of permanent repair embodiment following temporary allowable damage or repair,
- in case of future requirement to trace back the damage or repair history or background.
B. Information of general repair details that should be recorded in repair data form:
- A/C model, type, series and weight variant
- manufacturers serial number, A/C registration and serial number (if on a removable component)
- type of damage (dent, scratch, nick, crack, corrosion etc.)
- action taken including references.
C. Location of repair that should be recording in repair data form:
- sketch or drawing
- photograph (optional)
- general location - e.g. fuselage nose section lower LH Skin or LH Outboard Flap L/E etc.
- detailed location - e.g. between FR XX and FR YY, Stringer A and Stringer B or 200mm from STA XXX etc.
- dimensions to existing structural details (distance to stringer, frames etc.).
NOTE: Refer to Chapter 51-11-13 for more details.
D. Dimension of the re
- length, width o
- size of cut-out if applicable, depth of dent, etc.
air geometry
NOTE: Refer to Chapter 51-11-13 for more details.
E. Proximity to adjacent repairs, original doublers, mods or production joints:
- identify any repair(s) or damage located on the same or adjacent component (e.g. within one stringer, rib or frame bay of the primary repair)
- distance fastener to fastener from adjacent repair, original doublers, mods or production joints.
Damage assessment has to be recorded
Second longitudinal joint below window line
1st stringer
208 mm
45 mm
82 mm
UP
FWD
MAXIMUM DEPTH OF SKIN DENT
8 mm (0.31 in.)
7 mm (0.28 in.)
6 mm (0.24 in.)
5 mm (0.20 in.)
4 mm (0.16 in.)
3 mm (0.12 in.)
2 mm (0.08 in.)
1 mm (0.04 in.)
C
2
3
4
D/T = 2
0
1 mm (0.04 in.)
2 mm (0.08
3 mm
4 mm
5 mm (0.20 in.)
6 mm (0.24 in.)
7 mm (0.28 in.)
8 mm (0.31 in.)
1.6 mm (0.063 in.)
IN DENTED AREA.
Diagram 103

ALLOWABLE DAMAGE INFORMATION - CONT'D

DAMAGE ASSESSMENT EX. 1 OPERATIONAL SCENARIO (3)

SESSION SET UP

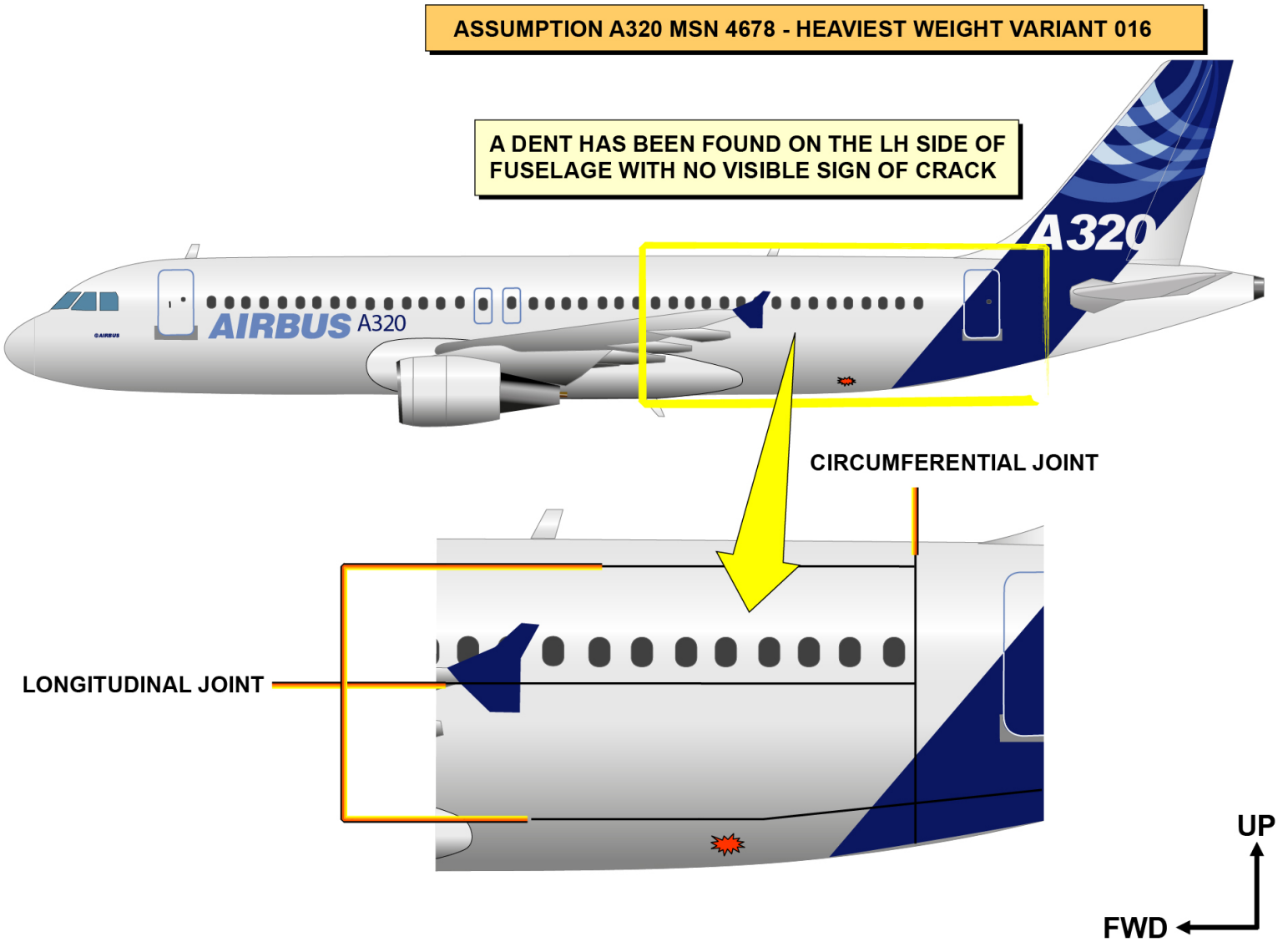
A320 MSN 4678 Heaviest Weight Variant 016.
A dent has been found on the LH side of the fuselage with no visible sign of cracks.
Take visual references to find the damage such as, passenger or cargo doors, cabin windows, longitudinal or circumferential joints.

DAMAGE ASSESSMENT PROCESS

DAMAGE LOCATION

- Find the aircraft type (-100 or -200) for the MSN, using the SRM introduction chapter.
- Determine in which fuselage section is the damage location, using "typical section division" illustration from SRM 53-00-00.
- Determine what is the item number related to the damaged panel, using the illustration "Main panel and section configuration", from SRM 53-00-00.
- Determine what is the nearest longitudinal joint, and its stringer number.
- Determine between which frames and which stringers the panel item 10 location is.
- Determine between which frames is the damage location, using the "frames and station numbers" illustration from SRM 53-00-00.

UGB13131 - U7ST0M0 - UM51M1000000001


ASSUMPTION A320 MSN 4678 - HEAVIEST WEIGHT VARIANT 016
A DENT HAS BEEN FOUND ON THE LH SIDE OF FUSELAGE WITH NO VISIBLE SIGN OF CRACK
AIRBUS A320
A320
CIRCUMFERENTIAL JOINT
LONGITUDINAL JOINT
UP
FWD

SESSION SET UP & DAMAGE ASSESSMENT PROCESS

DAMAGE ASSESSMENT EX. 1 OPERATIONAL SCENARIO (3)

DAMAGE ASSESSMENT PROCESS (continued)

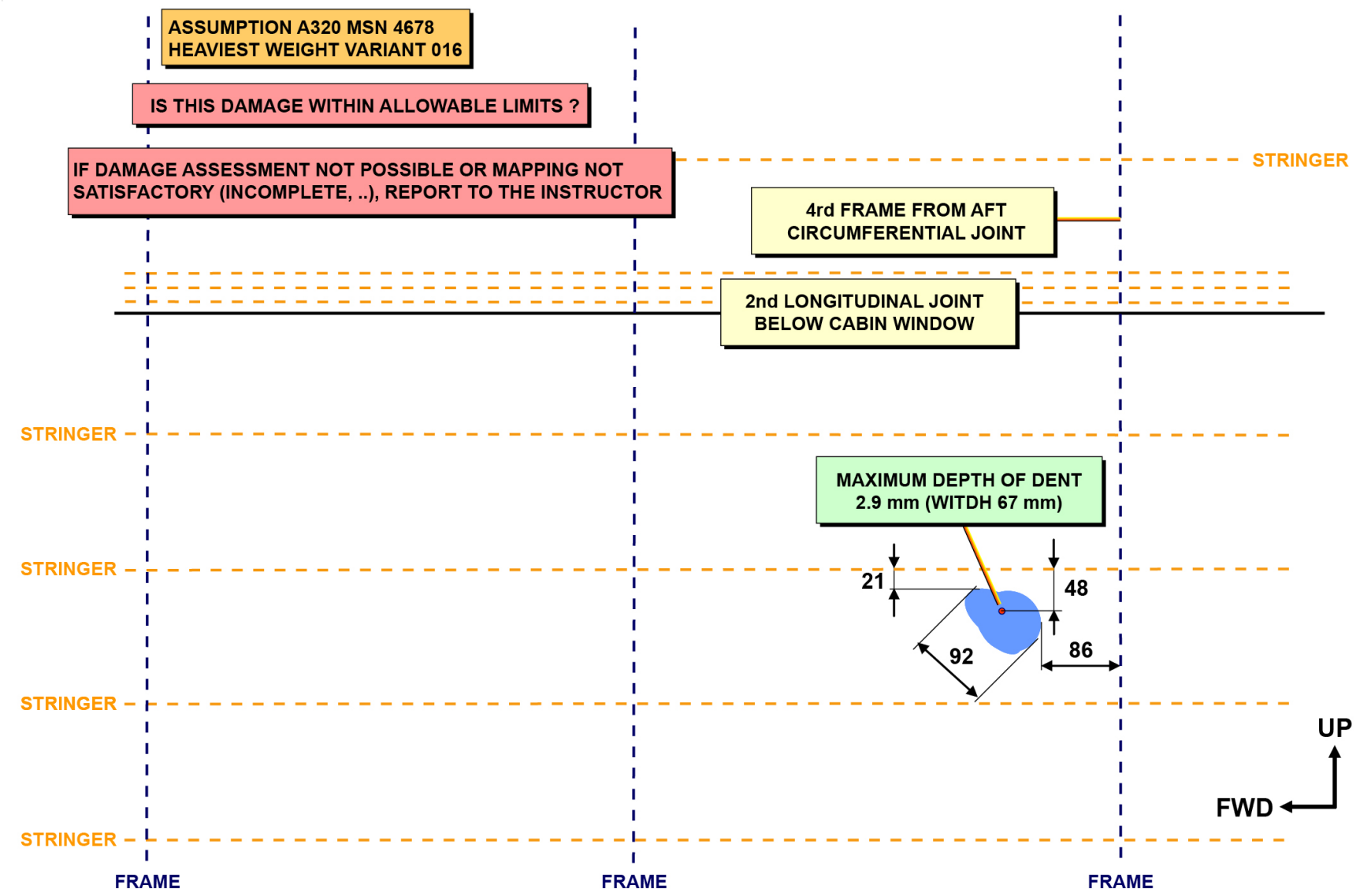
PANEL IDENTIFICATION AND SKIN THICKNESS

- Find the skin panel where the damage location is to determine skin thickness and to finalize the mapping (damage between which stringers).

ALLOWABLE DAMAGE

- Refer to the damage criteria table in the allowable damage page block for the relevant fuselage section, and find out relevant paragraph for the damage type.
- Check if the WV of MSN is within WV per effectivity table.
- Check if dent location is in an excluded area or not, see the relevant figure.
- Use the relevant dent diagram depending on damage location and WV.
- According to the allowable dent diagram, check if D < or = 10 % A and B > or = 15 mm..
- Read the allowable diagram for dent to find out the conclusion of the damage assessment.

UGB13131 - U7ST0M0 - UM51M1000000001



DAMAGE ASSESSMENT PROCESS - PANEL IDENTIFICATION AND SKIN THICKNESS & ALLOWABLE DAMAGE

DAMAGE ASSESSMENT EX. 2 OPERATIONAL SCENARIO (3)

SESSION SET UP

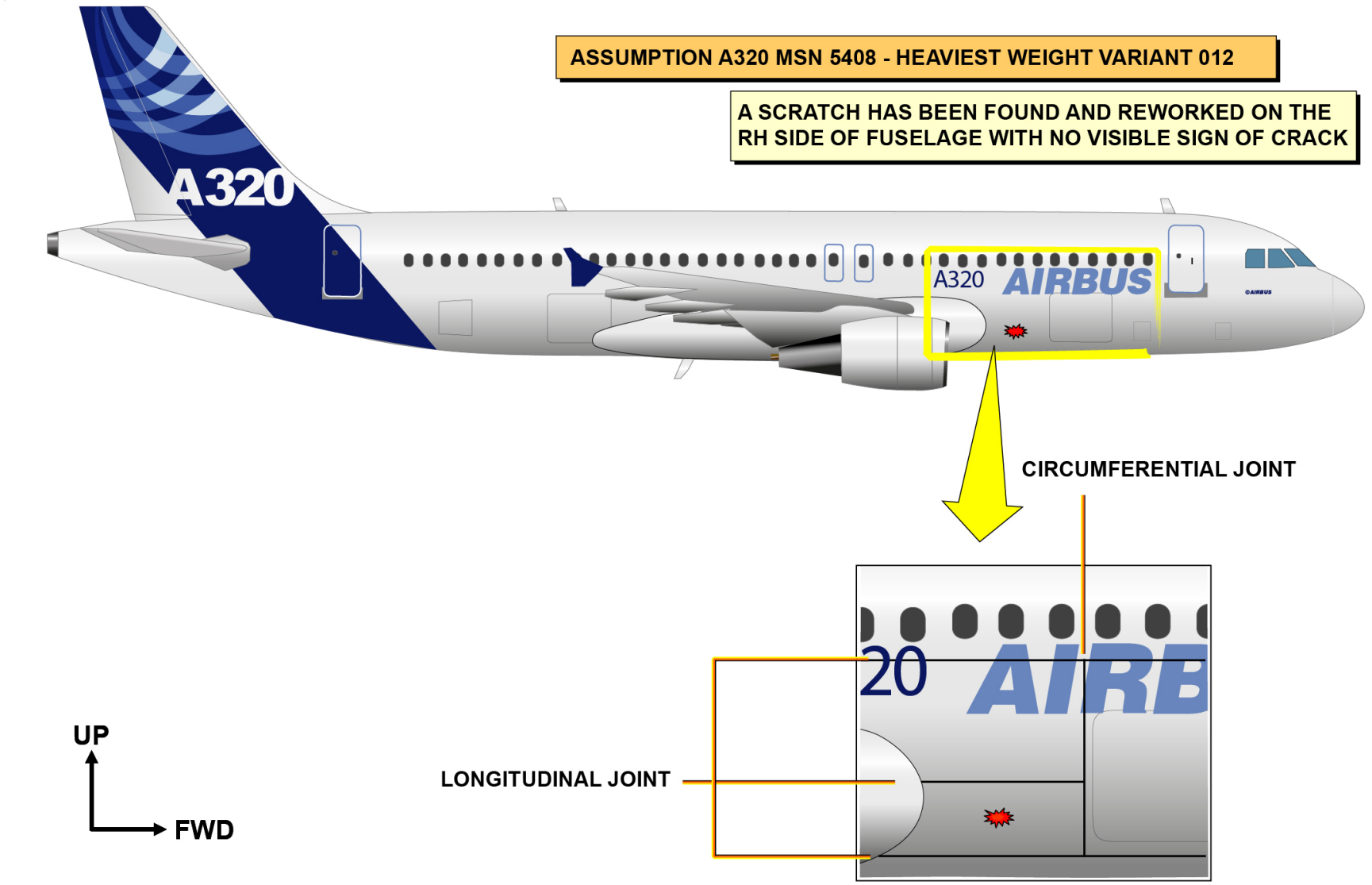
A320 MSN 5408 Heaviest Weight Variant 012.
A scratch has been found and reworked on the RH side of the fuselage with no visible sign of cracks.
Take visual references to find the damage such as, passenger or cargo doors, cabin windows, longitudinal or circumferential joints.

DAMAGE ASSESSMENT PROCESS

DAMAGE LOCATION

- Find the aircraft type (-100 or -200) for the MSN, using the SRM introduction chapter.
- Determine in which fuselage section is the damage location, using "typical section division" illustration from SRM 53-00-00.
- Determine what is the item number related to the damaged panel, using the illustration "Main panel and section configuration", from SRM 53-00-00.
- Determine what is the nearest longitudinal joint, and its stringer number.
- Determine in between which frames and which stringers the panel item 8 location is.
- Determine in between which frames is the damage location, using the "frames and station numbers" illustration from SRM 53-00-00.

UGB13131 - U7ST0M0 - UM51M2000000001


ASSUMPTION A320 MSN 5408 - HEAVIEST WEIGHT VARIANT 012
A SCRATCH HAS BEEN FOUND AND REWORKED ON THE RH SIDE OF FUSELAGE WITH NO VISIBLE SIGN OF CRACK
A320
A320 AIRBUS
CIRCUMFERENTIAL JOINT
LONGITUDINAL JOINT
UP
FWD

SESSION SET UP & DAMAGE ASSESSMENT PROCESS

DAMAGE ASSESSMENT EX. 2 OPERATIONAL SCENARIO (3)

DAMAGE ASSESSMENT PROCESS (continued)

PANEL IDENTIFICATION AND SKIN THICKNESS

- Find the skin panel where the damage location is to determine skin thickness and to finalize the mapping (damage in between which stringers).
- Check if any of the modifications related to the modified skin panel has been embodied on MSN 5408, see modification SB list within SRM 53-20-00.

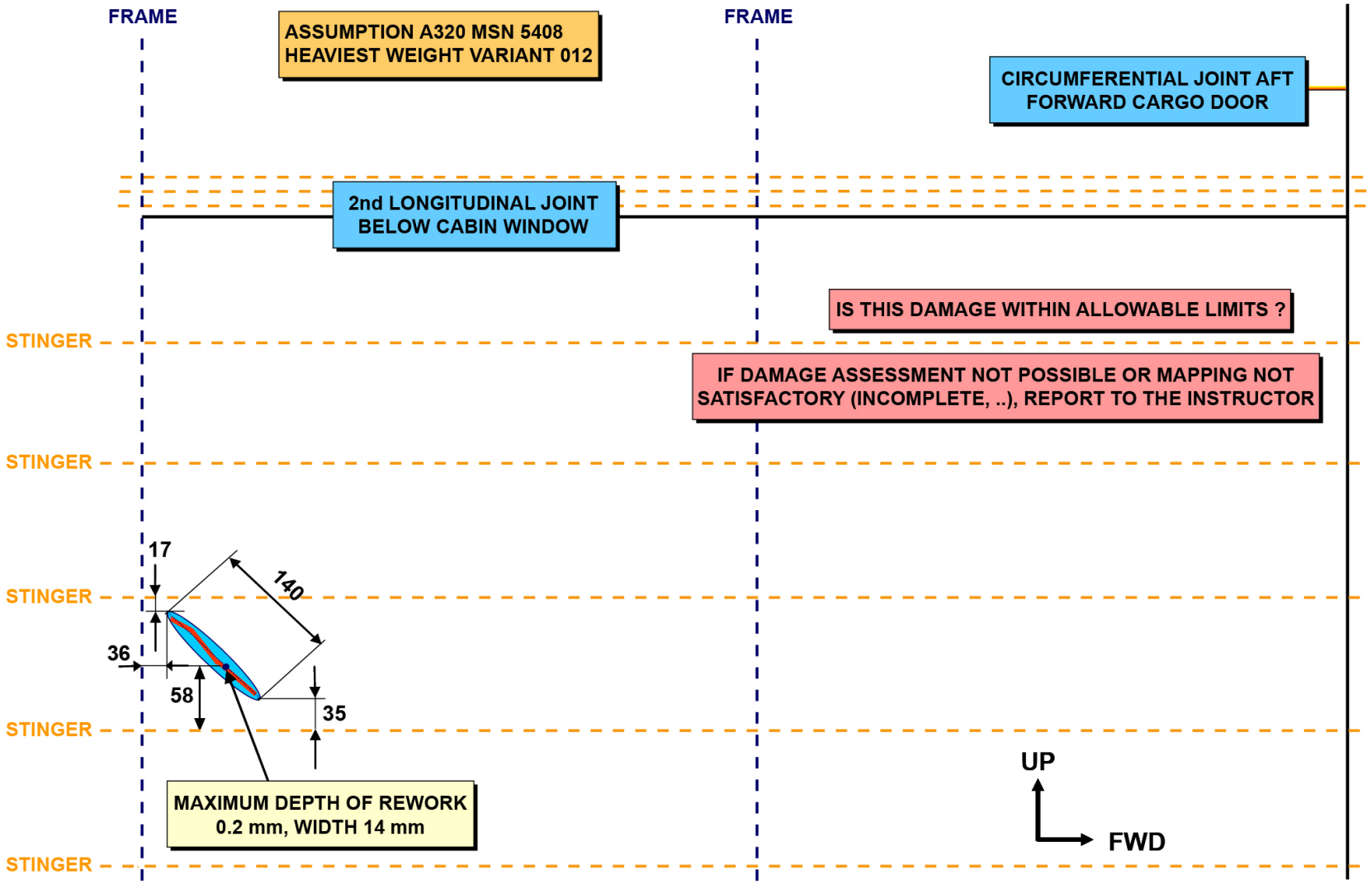
ALLOWABLE DAMAGE

- Refer to the damage criteria table in the allowable damage page block for the relevant fuselage section, and find out relevant paragraph for the damage type.

NOTE: Do not forget to read the flag notes related to the damage criteria table.

- Check if damage location is in applicable areas.
- Check if the WV of MSN is within WV per effectivity table.
- Check if rework depth meets the requirements given by the figures.
- Check if damage affects unriveted area only, or riveted and unriveted area
- Read the allowable diagram for unriveted area to find out the conclusion of the damage assessment, check if the minimum width of rework is achieved.

UGB13131 - U7ST0M0 - UM51M2000000001



DAMAGE ASSESSMENT PROCESS - PANEL IDENTIFICATION AND SKIN THICKNESS & ALLOWABLE DAMAGE

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STM
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